Washington Herp Atlas

Welcome to the Washington Herp Atlas – Maps updated March 2017

Contents:

Information about this document

The Washington Herp Atlas was originally developed as a website hosted by Washington Department of Natural Resources and subsequently hosted by Washington Department of Fish and Widllife. The website existed from 2005-2019. The following document was created in July 2019 to capture the website content but is not intended as a final version. Bookmarks in the Table of Contents link to each species account and to photos of each species, photos showing the key features for species indentification and dot distribution maps. For addtional information contact Lisa Hallock at Lisa.Hallock@dfw.wa.gov or at 360-902-2389. To sumit observations of amphibians and reptiles to Washington Department of Fish and Wildlife, contact Jane Jenkerson at Jane.Jenkerson@dfw.wa.gov

Citation

Washington Herp Atlas. 2009. A cooperative effort of Washington Natural Heritage Program, Washington Department of Fish and Wildlife, U.S.D.I. Bureau of Land Management, and U.S. Forest Service. Map products updated March 2017. Provisional PDF version of the website (2005-2019) created July 2019. 250 pp.

Species accounts were authored by Lisa Hallock and Kelly McAllister as listed at the end of each account. Lori Salzer and Jack McMillen collaborated on the production and updates of the distribution maps. A complete list of contributors is provided in the acknowledgements section of the Washington Herp Atlas Home page.

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Welcome to the Washington Herp Atlas – **Maps updated March 2017**

Contents:

Introduction

Welcome to the Washington Herp Atlas. The Washington Herpetofaunal Atlas Project is a cooperative project of the Washington Department of Natural Resources (DNR), Bureau of Land Management (BLM), Washington Department of Fish and Wildlife (WDFW), and US Forest Service (USFS).

The Washington Herp Atlas serves two primary purposes. The first purpose is to provide the most current information available on Washington's herpetofauna (amphibians and reptiles, or "herps") including information on life history, habitat, status, threats, management concerns and distribution. The second purpose is to obtain additional information about Washington's amphibians and reptiles. To obtain reliable information, identifications must be accurate. To facilitate this, the atlas has species accounts that feature descriptions, identification tips, habitat information and photographs. The photographs include a variety of life stages, typical habitat and a set of annotated photographs with key identification features indicated. In addition, inventory and research needs for each species are listed.

Information obtained through this project will be used to track the current status of each species, document rare species occurrences, analyze population trends, identify critical habitat and establish conservation priorities.

Intended audience

The Washington Herp Atlas was created for field personnel and dedicated amateurs interested in reptiles and amphibians, as well as individuals involved in land management activities and conservation efforts. The atlas is designed to be accessible to a wide audience with little training in herpetology. Common names are used in most cases and technical terminology is avoided where possible. The information is presented in a format designed to help field personnel identify species, and also to provide planners and managers with information on status and possible management concerns.

Plans for Additions

The original species accounts and maps will be updated periodically to reflect new research and information.

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Nomenclature

Scientific nomenclature in the Washington Herp Atlas follows Crother (2000) with the exception of revisions to the tailed frog (Nielson et al. 2001), Red-legged Frog (Shaffer et al. 2004) and Western Pond Turtle (Holman and Fritz 2001). Many of the modified common names presented in Crother (2000) are not followed here but will be reconsidered in the future if accepted by herpetologists.

Recommended Field Guides

There are many reptile and amphibian field guides available for the Northwest. The Washington Herp Atlas is not meant to replace them, but rather to be used as a supplement with specific information about Washington populations. The following list includes a brief description of each book and is intended to help the reader identify the guide best suited for their level of expertise and interest. For those interested in identifying frog species by their advertisement call, **Frog and Toad Calls of the Pacific Coast** is available from the Cornell Laboratory of Ornithology, Library of Natural Sound. The Washington Herp Atlas checklist can be used to identify taxonomic changes that have occurred since these books and tape were published.

Corkran, C. C. and C. Thoms. 1996. Amphibians of Oregon, Washington and British Columbia. Lone Pine, Redmond, Washington. 175 pp.

This field guide covers the amphibians of Oregon, Washington and British Columbia. It features introductory information on amphibians, how to handle and measure amphibians, how to photograph amphibians and habitat information. The individual species accounts include identification information for each life stage, including eggs, hatchlings, larvae and metamorphosed juveniles and adults, as well as a description of typical habitat and a generalized distribution map. The information is concise and easy to understand.

Jones, L.L.C., W.P. Leonard and D.H. Olson (Coordinating Editors). 2005. Amphibians of the Pacific Northwest. Seattle Audubon Society, Seattle, Washington.

This recently published field guide is now available in stores.

Leonard, W.P., H.A. Brown, L.L.C. Jones, K.R. McAllister and R.M. Storm. 1993. Amphibians of Washington and Oregon. Seattle Audubon Society The Trailside Series, Seattle, Washington. 169 pp.

This book covers the amphibian species that occur in Washington and Oregon. It includes introductory information on amphibians, a description of each species highlighting the most important identification features, similar species, distribution information, habits and habitats and remarks. There are also generalized distribution maps for each species. The accounts are concise and easy to understand. Identification information focuses on the larval and terrestrial forms (adults and juveniles). The photographs are excellent and show the variation found in each species. Photographs and information on amphibian egg and tadpole identification is limited.

Nussbaum, R.A., E.D. Brodies, Jr., and R.M. Storm. 1983. Amphibians and Reptiles of the Pacific Northwest. University of Idaho Press, Moscow, Idaho. 332 pp.

This book is the most technical of the field guides available for the Northwest. The introduction includes information on collecting and observing amphibians and reptiles, care in captivity and the composition and origin of the herpetofauna of the region. The main text includes identification keys and detailed information on identification traits, variation, life history, distribution dot maps, a large section of general references and literature cited. This book remains a must for the serious herpetologist even with all the changes that have occurred in the last twenty years. The distribution maps, though excellent for conveying a general sense of species' ranges, are somewhat dated.

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St. John, Alan. 2002. Reptiles of the Northwest: California to Alaska, Rockies to the Coast. Lone Pine Publishing. 272 pp.

This field guide covers the reptile species that occur from California to southern Alaska and from the Great Divide to the Pacific Coast. It includes general information about reptiles, reptile habitats in the northwest, field study techniques and identification keys in the form of "Quick Keys." For each of the 42 species covered, information is presented on identification, variation found within the species, similar species, distribution, habitat and behavior, as well as a variety of photographs. This field guide differs from other field guides by including field notes and personal anecdotes from the author.

Storm, R.M. and W. P. Leonard, W.P. (Coordinating Editors). 1995. Reptiles of Washington and Oregon. Seattle Audubon Society The Trailside Series, Seattle, Washington. 176 pp.

This field guide covers the reptile species that occur in Washington and Oregon. It includes introductory information on reptiles, a description of each species highlighting the most important identification features, similar species, distribution information, habits and habitats and remarks. There are also generalized distribution maps for each species. The accounts are concise and easy to understand. The photographs are excellent and show the types of variation found in each species, as well as important identification traits.

Stebbins, R. C. 2003. A Field Guide to Western Reptiles and Amphibians, 3nd Edition. The Peterson Field Guide Series. Houghton Mifflin Company, Boston. 533 pp.

This is a field guide to the reptiles and amphibians of Western North America. The introduction features basic information on amphibians and reptiles including information on collecting and observing, care in captivity, field study and protection. It contains identification keys, distinguishing characteristics of each species, a large number of illustrations and color plates, information on family groups, similar species, range, habitats, basic life history, and sex and age differences. There are also generalized distribution maps for each species.

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Acknowledgments

The creation of the on-line Washington Herp Atlas was made possible through Challenge Cost-share agreements between the Washington State Department of Natural Resources' Natural Heritage Program and the Spokane District of the U.S.D.I. Bureau of Land Management and through the cooperation of the Washington Department of Fish and Wildlife (WDFW). Lisa Hallock (DNR), Todd Thompson (BLM) and Kelly McAllister (WDFW) are the lead participants from each agency. The Colville National Forest of the USDA Forest Service and the Washington State Department of Natural Resources' Natural Heritage Program provided additional funding in the form of a Challenge Cost-share agreement to update and expand the atlas in 2005. Chris Loggers (USFS) was responsible for securing the US Forest Service portion of this funding.

The Washington State Gap Analysis Project provided the initial stimulus for the distribution maps. Christian Grue, Kelly Cassidy, and Karen Dvornich provided leadership in the compilation of quality distributional data. Kelly McAllister, Tom Owens, Lori Salzer and others of the Wildlife Resource Data System section of the Washington Department of Fish and Wildlife are the principle staff responsible for the creation of the reptile and amphibian database and for ongoing database development. The database, and the distribution maps included in this atlas, rely in large part on information shared with WDFW by various museums (listed below) and individual biologists.

Special thanks are due to the following people:

Todd Thompson who consistently located funding to keep this project going. Steve Farone whose enthusiasm in designing the website is greatly appreciated. Bill Leonard who provided early encouragement for the project and generously contributed essential photographs that enhanced the atlas. And to Kelly McAllister who co-authored all of the species accounts on his personal time.

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Museums

The following museums provided their records to the Washington Department of Fish and Wildlife in 1994: The American Museum of Natural History; Auburn University; Brigham Young University; California Academy of Sciences; Florida Museum of Natural History; Field Museum of Natural History; Fort Worth Museum of Science and Industry; University of Illinois at Urbana-Champaign; Illinois Natural History Survey; Los Angeles County Museum; Louisiana State University; Harvard's Museum of Comparative Zoology; Michigan Museum of Zoology ; Michigan State University; Museum of Vertebrate Zoology at University of California, Berkeley; National Museum of Natural History; North Carolina Museum of Natural History; New Mexico State University; Pacific Lutheran University; Slater Museum of Natural History at University of Puget South; Southern Illinois University; Stecker Museum at Baylor University; Texas A&M University; Tulane University; University of Colorado; University of Missouri at Columbia; University of Idaho; University of Kansas, University of Oklahoma; University of Texas at El Paso; University of Washington Burke Museum; Walla Walla College; Washington State University; and Yale University.

Photographic Images

The photographic images used in this project came from numerous sources and are used with permission; credits are noted on each image. All images contained hereafter are the property of the said photographer. They are not to be reproduced, copied, printed, stored, or distributed without permission of the photographer. Bill Leonard (W.P. Leonard) generously donated the majority of photos for use in this project. He can be contacted at mollusca1@attbi.com. Contact information for the other photographs is listed under the Contributors and Reviewers Section.

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How To Use the Washington Herp Atlas

Four links to information are always visible at the top of your browser window (Species Fact Sheets, Contributions & Questions, References, and Herp Atlas Home). These links are described in the table below.

Within the text of the Washington Herp Atlas, links look like this.

Links	Description
Species Fact Sheets	This link leads to the Checklist of Washington Amphibians and Reptiles. To display a fact sheet, click 'Species Fact Sheets' and then select the species of interest from either the checklist or from the list of common names on the side bar next to the checklist. Each fact sheet includes descriptions, identification tips, management concerns, and links to Photos, Key Features, and Distribution Maps.
Within each Species Fact Sheet are these links to additional pages:	Currently, the atlas describes 28 of the 46 native species known to occur in Washington. These 28 initial species were chosen because they are rare, sensitive or believed to be declining in Washington and/or are of management interest to the agencies involved in the project.
Photos	Links which open the photos page are located near the top of the fact sheet and in the text of the General Description section. Each photos page displays photographs of the species and its habitat. All photographs are reproduced with the photographers permission. The photos page opens in a separate window. To view both the photos page and the key features pages side-by-side, open the photos page, then click the 'key features page' link at the bottom of the photos page.
Key Features	Links to the key features page are located near the top of the fact sheet and in the text of the Identification section. A link is also available at the bottom of the photos page. Each key features page displays photos annotated with identification features. All photographs are reproduced with the photographers permission.
Distribution Maps	Links to the distribution map page are located near the top of the fact sheet and in the text of the Range section. Distribution Maps show known occurrences of the species in Washington with recent observations (last 20 years) differentiated from historical observations. Map data is presented courtesy of the Washington Department of Fish and Wildlife.
Status, State Rank, Global Rank	Click on the links for 'status', 'state rank', or 'global rank', to open the Definitions page which defines terms used by the Washington Department of Fish and Wildlife, U.S Fish and Wildlife Service, and the Washington Natural Heritage Program.
Contributions & Questions	This link leads to information about contributing amphibian or reptile sightings to the Washington Department of Fish and Wildlife. From this page, you can also contact the herpetologist for the Washington Natural Heritage Program, or the Herp Atlas webmaster.
References	This link leads to a complete list of all literature citations and personal communications citations in the website.
Herp Atlas Home	This link leads back to this Introduction page.

Washington Herp Atlas, 2009. Washington Natural Heritage Program, Washington Dept. of Fish & Wildlife, U.S.D.I. Bureau of Land Management and US Forest Service

http://wdfw.wa.gov/conservation/herp_atlas/

Checklist of Washington Amphibians and Reptiles

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern

Checklist of Washington Amphibians and Reptiles

Links: Amphibians: Salamanders Frogs Reptiles: Turtles Lizards Snakes

Click on underlined links to view Species Fact Sheets

Amphibians (Class Amphibia)

Salamanders (Order Caudata)

Giant Salamanders (Family Dicamptodontidae)

- **Cope's Giant Salamander** (*Dicamptodon copei*)
- **Pacific Giant Salamander** (*Dicamptodon tenebrosus*)

Torrent Salamanders (Family Rhyacotritonidae)

- **Cascade Torrent Salamander** (*Rhyacotriton cascadae*)
- **Columbia Torrent Salamander** (*Rhyacotriton kezeri*)
- **Olympic Torrent Salamander** (*Rhyacotriton olympicus*)

Mole Salamanders (Family Ambystomatidae)

- **Long-toed Salamander** (*Ambystoma macrodactylum*)
- **Northwestern Salamander** (*Ambystoma gracile*)
- **Tiger Salamander** (*Ambystoma tigrinum*)

Newts (Family Salamandridae)

- **Rough-skinned Newt** (*Taricha granulosa*)

Lungless Salamanders (Family Plethodontidae)

- **Dunn's Salamander** (*Plethodon dunni*)
- **Ensatina** (*Ensatina eschscholtzii*)
- **Larch Mountain Salamander** (*Plethodon larselli*)
- **Van Dyke's Salamander** (*Plethodon vandykei*)
- **Western Red-backed Salamander** (*Plethodon vehiculum*)

Frogs (Order Anura)

Spadefoot Toads (Family Pelobatidae)

- **Great Basin Spadefoot** (*Spea intermontana = Scaphiopus intermontanus*)

True Toads (Family Bufonidae)

- **Western Toad** (*Bufo boreas*)
- **Woodhouse's Toad** (*Bufo woodhousii*)

Treefrogs (Family Hylidae)

- **Pacific Treefrog** (*Pseudacris regilla*) = Pacific Treefrog (*Hyla regilla*) = Pacific Chorus Frog (*Pseudacris regilla*)

True Frogs (Family Ranidae)

- **Bullfrog** (*Rana catesbeiana*)
- **Cascades Frog** (*Rana cascadae*)
- **Columbia Spotted Frog** (*Rana luteiventris*)
- **Green Frog** (*Rana clamitans*)
- **Oregon Spotted Frog** (*Rana pretiosa*)
- **Northern Leopard Frog** (*Rana pipiens*)
- **Northern Red-legged Frog** (*Rana aurora*)

Tailed Frogs (Family Ascaphidae)

- **Coastal Tailed Frog** (*Ascaphus truei*)
- **Rocky Mountain Tailed Frog** (*Ascaphus montanus*)

Reptiles (Class Reptilia)

Turtles (Order Testudines)

Family Emydidae

- **Painted Turtle** (*Chrysemys picta*)
- **Slider** (*Trachemys scripta*)
- **Western Pond Turtle** (*Actinemys marmorata*) = (*Clemmys marmorata = Emys marmorata*)

Amphibians List
Reptiles List

Amphibians:
Bullfrog
Cascade Torrent Salamander
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Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Lizards (Order Squamata)

Iguanids (Family Iguanidae = Phrynosomatidae)

- **Pygmy Short-horned Lizard** (*Phrynosoma douglassii*)
- **Sagebrush Lizard** (*Sceloporus graciosus*)
- **Side-blotched Lizard** (*Uta stansburiana*)
- **Western Fence Lizard** (*Sceloporus occidentalis*)

Skinks (Family Scincidae)

- **Western Skink** (*Eumeces skiltonianus*)

Alligator Lizards (Family Anguidae)

- **Northern Alligator Lizard** (*Elgaria coerulea*)
- **Southern Alligator Lizard** (*Elgaria multicarinata*)

Snakes (Order Squamata)

Colubrids (Family Colubridae)

- **California Mountain Kingsnake** (*Lampropeltis zonata*)
- **Common Garter Snake** (*Thamnophis sirtalis*)
- **Gopher Snake** (*Pituophis catenifer*)
- **Night Snake** (*Hypsiglena torquata*)
- **Northwestern Garter Snake** (*Thamnophis ordinoides*)
- **Racer** (*Coluber constrictor*)
- **Ringneck Snake** (*Diadophis punctatus*)
- **Sharptail Snake** (*Contia tenuis*)
- **Striped Whipsnake** (*Masticophis taeniatus*)
- **Western Terrestrial Garter Snake** (*Thamnophis elegans*)

Vipers (Family Viperidae)

- **Western Rattlesnake** (*Crotalus viridis*)

Boas (Family Boidae)

- **Rubber Boa** (*Charina bottae*)

The preceding checklist contains the 25 native amphibian species and 21 native reptile species known in Washington. Sea turtles are occasional visitors to waters off the Washington coast but were not included in the species list. The Bullfrog and Slider are introduced species that are commonly encountered in Washington. The Green Frog is an introduced species known from three areas of Washington.

Cope's Giant Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
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Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Cope's Giant Salamander

Taxon, Status, and Rank

Species	*Dicamptodon copei*	Nussbaum, 1970
Family	Dicamptodontidae (Giant Salamanders)	
Status	None	
State Rank	S3S4	
Global Rank	G3G4	

General Description

This is a medium-sized, marbled gold and brown salamander with a rounded snout, indistinct costal grooves and a laterally compressed tail. Adults reach lengths of 113 mm snout-vent length and 195 mm total length. Metamorphosed forms are rare.

Eggs are laid under rocks or logs and are guarded by the female. The eggs are white (unpigmented), laid singly and attached to the nest wall by short pedicels.

Larvae are stream-type with short gills and a low tail fin that ends on the body near the hind limbs. The tips of the digits are black and hard (cornified). Larvae are light brown with minimal dark mottling above. The ventral surface is white in small larvae (less 50 mm snout-vent length) and bluish gray in larger individuals. Granular clusters of tan to yellow pigmentation are present on the dorsal and lateral surfaces. See Photos Page.

Identification Tips

Terrestrial forms: Transformed Giant Salamanders are easily distinguished from all other Washington salamanders by the marbled pattern on the head and dorsal surface. Transformed Cope's Giant Salamanders are rare; almost all individuals found are larval salamanders. The traits that distinguish the two giant salamander species are subtle. The Cope's Giant Salamander is smaller, has a more narrow head and shorter legs. The first two traits require experience to discern the differences between the two species. To determine relative leg length, the forelimbs are gently pressed backward against the body and the hind limbs are pressed forward against the body (adpressed legs). The toes will not touch or cross in the Cope's Giant Salamander but will with the Pacific Giant Salamander.

Eggs: The female will be present in the nest chamber guarding the eggs. Nussbaum et al. 1983 provides a description of individual eggs.

Larvae: The short gills and low tail fin distinguish stream-type salamanders from pond-type. Of stream-type larvae, the torrent salamanders (*Rhyacotriton* species) can be easily distinguished by their orange ventral coloration and tiny gills that are barely visible when the salamander is out of water.

Differentiating Cope's Giant Salamander larvae from Pacific Giant Salamander larvae is challenging, especially for smaller larvae (<50 mm snout-vent length). Range differences can be used; only Cope's Giant Salamander is found on the Olympic Peninsula north of the Chehalis River (see Distribution maps). Species identification based on location should be indicated in field notes or data submitted to museums or databases. For larvae 50 mm snout-vent length or greater, the following traits can be used to determine species. The head of Cope's Giant Salamander is similar in width at the base and snout and the head width is less than 1/5 the snout-vent length. Toes do not touch or overlap when legs are adpressed against the body. The tan to yellowish pigmentation on the dorsal surface of the body is clustered into spots and blotches. Whereas the Pacific Giant Salamander has tan to yellowish pigmentation present in indistinct streaks as if someone painted it on the surface with a dry brush. See Key Features Page.

Phenology

Metamorphosed forms are rare. Similar to other giant salamander species, most activity is probably nocturnal and much time is spent in subterranean microhabitats. Larval forms tend to be common and are the life stage most likely to be observed. Larvae can be observed year round in flowing water bodies and may also be present in higher elevation still-water habitats connected to flowing water bodies. Breeding takes place in the spring, summer and fall with peak activity in the spring and fall. The female guards the eggs for 200 days or more until they hatch. The larval stage is permanent for most individuals with sexual maturity occurring in the larval form (paedomorphosis). Average size at maturity is 65-77 mm snout-vent length but may not take place until the larvae reach 114 mm snout-vent length.

Range

In Washington, Cope's Giant Salamanders occur primarily west of the Cascade Crest in the Pacific Coast, southern Puget Trough and West Cascades ecoregions. They are the only giant salamander documented north of the Chehalis River in the Olympic Peninsula. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Cope's Giant Salamanders are primarily associated with small to medium-sized mountain streams in moist coniferous forests. Giant salamanders are often the dominant vertebrate within streams. Metamorphosed forms are extremely rare.

Larvae and gilled adults can be observed day or night in streams. During the day, they are typically concealed under rocks or woody debris. Occasionally they can be observed moving about in the stream. More typically, one must search for them by gently poking under rocks and woody debris, gently lifting cover objects and/or searching for them visually with the assistance of a glass-bottom viewing bucket or similar item placed in the water. Methods more destructive to the stream bed call for good justification. At night, they are less likely to be sheltered and can be observed moving about in the stream. To capture them, it is necessary in most cases to use a hand-held net or to place a small net across the steam channel. For small larvae, an aquarium net is often sufficient. To prevent introduction or transfer of disease, care should be taken to sterilize any nets that have been used with fish and also to sterilize nets between each stream.

State Status Comments

This species occurs throughout its historical range. Local declines and extirpations may have occurred but have not been documented. The main concerns for this species have to do with protection of stream integrity, mainly land uses that elevate stream temperatures and contribute to erosion and increased sedimentation.

Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Oregon

Inventory and Research Needs

Observations that occur in areas that are not indicated on the distribution map can be submitted to the Washington Department of Fish and Wildlife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Current or Recent Research in Washington

The Cooperative Monitoring Evaluation and Research (CMER) Committee and Adaptive Management Program have funded a Type N Experimental Buffer Treatment Study that addresses the effectiveness of Forest Practice's prescribed riparian buffers along non-fish bearing streams. Four Forests and Fish Agreement target species (Coastal Tailed Frog [*Ascaphus truei*] and three species of Torrent Salamanders [*Rhyacotriton*]) along with Cope's and Coastal Giant Salamanders (*Dicamptodon*) are one focus of the study. It is a before-after control-impact designed study that compares one application of the current prescribed buffer to a shorter buffer, longer buffer, and an unharvested reference basin located on timber-managed land. The research will focus on potential changes in amphibian occupancy and abundance before and after timber harvest. The study is intended to inform the current buffer prescription rule for non-fish bearing streams in Washington State. Research is conducted by the Washington Department of Fish and Wildlife Habitat Program, the Washington Department of Ecology, Northwest Indian Fisheries Commission, and Weyerhaeuser. Study basins are located on private, state, and federally owned lands. Numerous stakeholders support this study including major and minor private landowners, state and federal agencies, tribes, and an environmental caucus.

Threats and Management Concerns

Activities that alter the integrity of small and medium-sized forested streams are of concern, especially those actions that increase water temperature and sedimentation. Land management practices that fail to protect streams from sedimentation may be particularly problematic for salamander populations that occur in low-gradient streams, as increased silt deposition may eliminate crucial microhabitats. This happens when silt fills spaces between rocks and logs that would otherwise be used as sheltering, hiding and nesting sites.

References

Bury and Corn (1988b), Corn and Bury (1989), Leonard et al. (1993), Nussbaum et al. (1983), Petranka (1998).

Personal communication: Aimee Macintyre, L.L.C. Jones

Hallock, L.A. and McAllister, K.R. 2009. Cope's Giant Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

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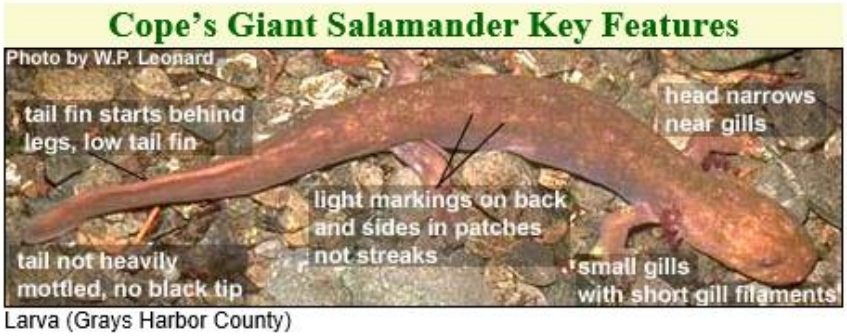
Photos

Gilled adult (Grays Harbor County)

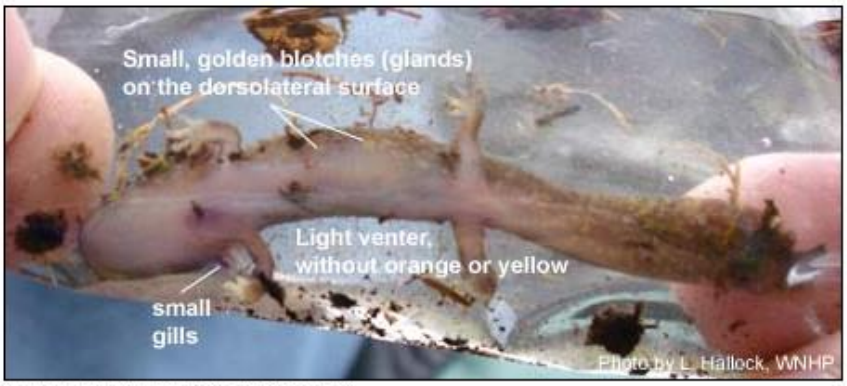
Underside of a larva (Pacific County)


Habitat (Pacific County)

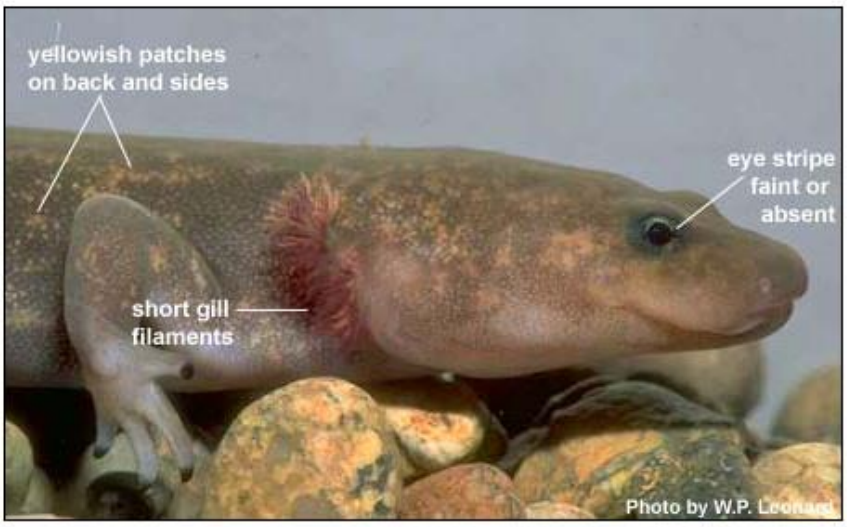
Key Features



Larva (Grays Harbor County)



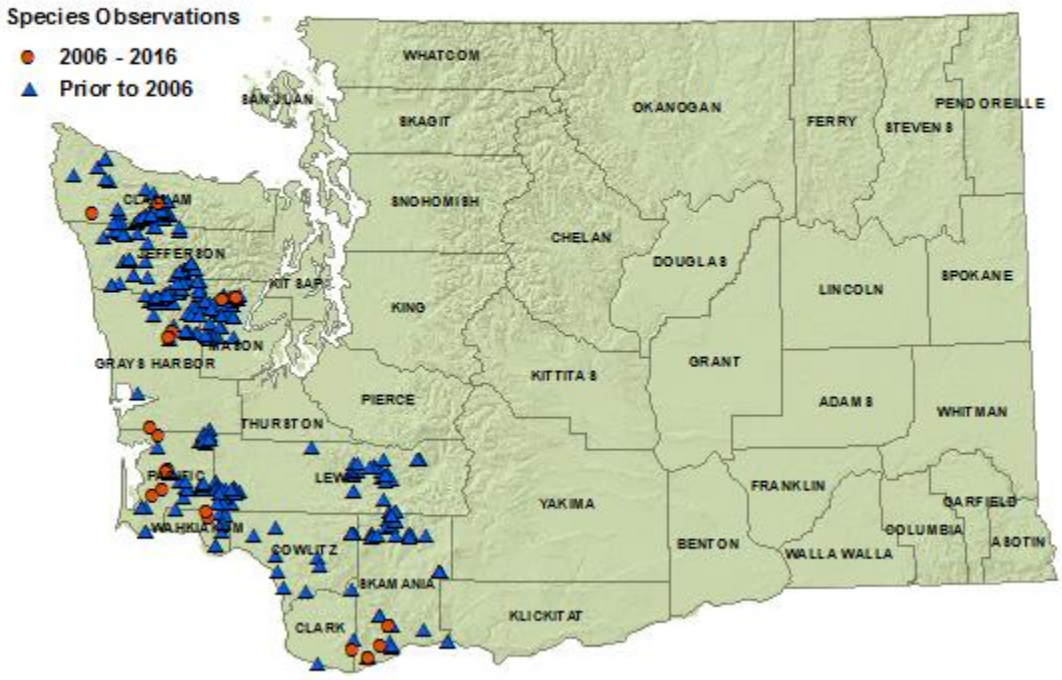
Underside of larva (Pacific County)



Larva (Skamania County)

Distribution Map

Cope's Giant Salamander - Known Distribution



Pacific Giant Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Oregon Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog

Pacific Giant Salamander

Taxon, Status, and Rank

Species	*Dicamptodon tenebrosus* (Eschscholtz)
Family	Dicamptodontidae (Giant Salamanders)
Status	None
State Rank	S5
Global Rank	G5

General Description

This is a large, stocky, marbled gold and brown salamander with a rounded snout, indistinct costal grooves and a laterally compressed tail. The largest terrestrial salamander in North America; adults reach lengths of 170 mm snout-vent length and 340 mm total length. The marbling becomes less distinct as the salamander ages and may only be present on the head of very old individuals. The ventral surface is usually white to light gray (may also be dark in some individuals) without other markings or pattern. Twelve to thirteen costal grooves are present but indistinct.

The eggs are laid under rocks or logs and are guarded by the females. The eggs are white without pigmentation, laid singly and attached to the nest wall by short pedicels.

Larvae are stream-type with short gills and a low tail fin that ends on the body near the hind limbs. The tips of the digits are black and hard (cornified). Small larvae (< 55 mm snout-vent length) are light brown above and white below. Subtle tan to yellowish streaks of pigmentation is present on the dorsal and lateral surfaces in indistinct streaks. The tail is mottled with darker pigmentation and there is usually a dark blotch at the tip of the tail. Larger larvae (>55 mm snout-vent length) are more mottled, have dark ventral surfaces and the mottling and spot on the tail are less conspicuous or may be absent. See Photos Page.

Identification Tips

Transformed Giant Salamanders are easily distinguished from all other Washington salamanders by the marbled pattern on head and dorsal surfaces. Transformed Cope&#65533;s Giant Salamanders are rare; almost all individuals found are larval salamanders. The traits that distinguish the two species are subtle. The Pacific Giant Salamander is larger, has a wider head and longer legs. The first two traits require experience working with giant salamanders to learn how to discern these differences. To determine relative leg length, the forelegs are gently pressed backward against the body and the hind legs forward against the body (adpressed legs). The toes will touch or cross in the Pacific Giant Salamander but will not with a Cope&#65533;s Giant Salamander.

Eggs: The female will be present in the nest chamber guarding the eggs. Nussbaum et al. (1983) provides a description of individual eggs.

Larvae: The short gills and low tail fin distinguish stream-type salamanders from pond-type. Of the stream-type larvae, the torrent salamanders (*Rhyacotriton* species) can be easily distinguished by their orange ventral coloration and tiny gills that are barely visible when the salamander is out of water.

Differentiating Cope&#65533;s Giant Salamander larvae from Pacific Giant Salamander larvae is challenging, especially for smaller larvae (<50 mm snout-vent length). Range differences can be used; only the Pacific Giant Salamander has been documented north of the Nisqually River in Pierce, King, Snohomish, Skagit and Whatcom counties (see Distribution maps). Species identifications based on location should be indicated in field notes or data submitted to museums or databases.

For larvae 50 mm snout-vent length or greater, the following traits can be used to determine species. The head of the Pacific Giant Salamander is wider at the base than at the snout and the head width is more than 1/5 the snout-vent length. Toes touch or overlap when legs are adpressed against the body. The tan to yellow pigmentation on the dorsal and lateral surfaces of the body is clustered in indistinct streaks as if someone painted it on the surface with a dry brush; not clustered into spots and blotches. See Key Features Page.

Phenology

Metamorphosed forms spend most of their lives in the subterranean environment and are rarely seen. Most surface activity takes place at night although diurnal activity is also reported. Larval forms are the life stage most likely to be observed. Larvae can be observed year round in flowing water bodies and may also be present in higher elevation ponds and lakes connected to flowing water bodies. Breeding takes place in the spring and fall. The female lays her eggs in the spring and then guards the eggs until they hatch about 200 days later. The larval period is 18 to 24 months or may be permanent (gilled adults) depending on local conditions. Sexual maturity takes place in all forms around 115 mm snout-vent length.

Range

In Washington, Pacific Giant Salamanders occur primarily west of the Cascade Crest in the Pacific Coast, Puget Trough and West Cascades ecoregions. They also occur east of the Cascade Crest in some areas of the East Cascades Ecoregion. They do not occur north of the Chehalis River on the Olympic Peninsula. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Pacific Giant Salamanders are primarily associated with small to medium-sized mountain streams in moist coniferous forests. They may also enter larger flowing water bodies and still water habitats connected to the streams they inhabit. Breeding sites are limited to smaller flowing water bodies. Pacific Giant Salamanders are often the dominant vertebrate within streams. Most occurrences are found below 960 m (3,150 ft) elevation but populations have been observed at higher elevations.

Metamorphosed forms are rare in comparison to the larval forms. Most surface activity is at night or during daytime wet conditions. Most individuals are found within 50 m of steams. In Oregon, observations have been made of individuals as far as 400 m from streams. They are alert and will flee underground when approached. If captured, their defensive behaviors include an audible growl, tail waving, emitting of noxious and toxic skin secretions and biting.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

State Status Comments

This species is common and occurs throughout western Washington. The main concerns for this species have to do with all land uses that contribute to stream sedimentation or elevated stream temperatures.

Inventory and Research Needs

Observations that occur in areas that are not indicated on the distribution map can be submitted to the Washington Department of Fish and Wildife herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Photo vouchers including dorsal, ventral and lateral views are preferred.

Current or Recent Research in Washington

The Cooperative Monitoring Evaluation and Research (CMER) Committee and Adaptive Management Program have funded a Type N Experimental Buffer Treatment Study that addresses the effectiveness of Forest Practice&#65533;s prescribed riparian buffers along non-fish bearing streams. Four Forests and Fish Agreement target species (Coastal Tailed Frog [*Ascaphus truei*] and three species of Torrent Salamanders [*Rhyacotriton*]) along with Cope&#65533;s and Coastal Giant Salamanders (*Dicamptodon*) are one focus of the study. It is a before-after control-impact designed study that compares one application of the current prescribed buffer to a shorter buffer, longer buffer, and an unharvested reference basin located on timber-managed land. The research will focus on potential changes in amphibian occupancy and abundance before and after timber harvest. The study is intended to inform the current buffer prescription rule for non-fish bearing streams in Washington State. Research is conducted by the Washington Department of Fish and Wildlife Habitat Program, the Washington Department of Ecology, Northwest Indian Fisheries Commission, and Weyerhaeuser. Study basins are located on private, state, and federally owned lands. Numerous stakeholders support this study including major and minor private landowners, state and federal agencies, tribes, and an environmental caucus.

Threats and Management Concerns

Activities that alter the integrity of small and medium-sized forested streams are of concern especially those actions that increase water temperature and sedimentation. Forestry practices that do not protect streams from sedimentation may be particularly problematic for salamander populations that occur in low-gradient streams where increased silt deposition may eliminate microhabitats crucial for the survival of the species. This happens when silt fills spaces between rocks and logs that would otherwise be used as sheltering, hiding and nesting sites.

References

Bury and Corn 1988b, Corn and Bury 1989, Nussbaum et al. (1983) and Petranka (1998).

Personal communications: Aimee Macintyre

Hallock, L.A. and McAllister, K.R. 2009. Pacific Giant Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

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Photos

Pacific Giant Salamander

Transformed adult

Larva (Wahkiakum County)

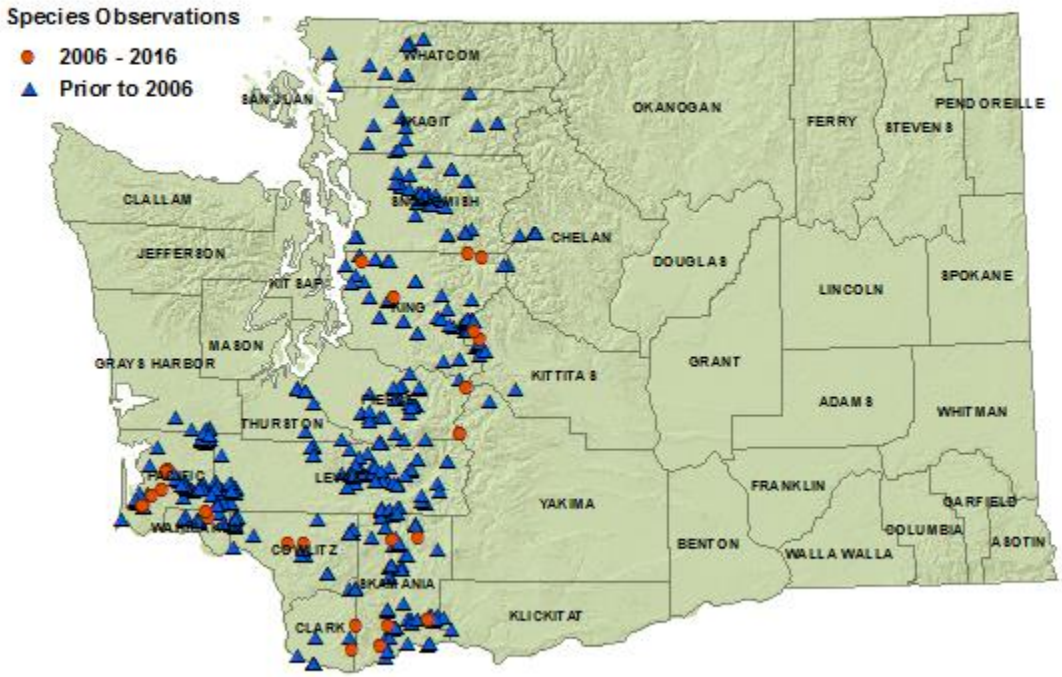
Key Features

Larva (Wahkiakum County)

Larva (Thurston County)

Distribution Map

Pacific Giant Salamander - Known Distribution



Cacade Torrent Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Cascade Torrent Salamander
(formerly Olympic Salamander)

Taxon, Status, and Rank

Species	*Rhyacotriton cascadae* Good and Wake formerly *Rhyacotriton olympicus*
Family	Rhyacotritonidae (Torrent Salamanders)
Status	State Candidate Species
State Rank	S3
Global Rank	G3

General Description

This is a small salamander that rarely exceeds 56 mm snout-vent length. The head is small with a short rounded snout and large prominent eyes. The body is relatively long with short limbs and a short tail. Coloration is brown above and yellow to orange-yellow below. White speckling is scattered on the body, but tends to be most concentrated on the sides. Varying amounts of dark dorsal spotting or mottling are a prominent feature of the color pattern, and a few black spots are often present on the belly. Males have prominent squared vent lobes, a trait unique to the family and the genus. The larvae have greatly reduced gills and tail fins, well-developed functional limbs, prominent dorsally positioned eyes that do not greatly protrude, and a white (young larvae) to yellow-orange belly. Eggs have not been found in the wild, suggesting females hide them well, perhaps in fractured rock or deep in springs. As in other members of the genus, eggs are thought to be unpigmented, laid singly and not attached to the substate. See Photos Page.

Identification Tips

The large size of the eyes (eye diameter approximately equal to snout length), relatively short rounded snout and generally prominent yellow component to the belly color are features that help distinguish torrent salamanders from other Washington salamanders. Adult male torrent salamanders can be distinguished from all other salamanders by the presence of prominent squared vent lobes. Superficially, metamorphosed torrent salamanders resemble Woodland Salamanders (*Plethodon* species) and Ensatina, but torrent salamanders lack nasolabial grooves and a constriction at the base of the tail (unique to Ensatina). Torrent salamanders and Rough-skinned Newts have a similar color patter, but differ in overall appearance with newts being stockier, having a thicker skin that is often rough (in the terrestrial phase) and lacking costal grooves. Torrent salamander larvae are the only stream-adapted (i.e., small gills and reduced tail fin) larval salamanders in Washington with a yellow to orange belly. The color pattern and morphology of torrent salamander species are similar and variable; therefore, torrent salamander species are best identified by collection locality and how that relates to the documented ranges of each species. Leonard et al. (1993) provide more details on color pattern differences between torrent salamander species. See Key Features Page.

Phenology

Cascade torrent salamanders may be active year-round at lower elevations. Breeding phenology is unknown, but may occur during most of the warmer months of the year. Based on the size distribution of larvae, eggs are most likely laid in the spring. Females produce relatively few eggs (usually less than 15). Based on laboratory observations, torrent salamander species may have the longest incubation period of any North American salamander, lasting 210-290 days at 8° C. The larval period is also though to be long, as a Columbia Gorge population was estimated to require 4.5 years before metamorphosis.

Range

Distribution in Washington is restricted to the western slopes of the Cascade Mountains south of the Nisqually River to the Columbia River in the Western Cascades Ecoregion. Distribution within the range is patchy. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Cascades Torrent Salamanders inhabit cold, permanent streams, seepages and waterfall splash zones, typically in areas with a thick canopy cover. They usually occur in stream segments or off-channel habitats that are shallow, slow flowing and that have gravel or rock rubble that is silt-free. Association with rock is also typical in seepages and waterfall splash zones. Larvae are fully aquatic. Adults are strongly associated with water and individuals are almost always found in contact with either free water or saturated substratum. During rainy wet periods individuals may be found in wet terrestrial forest settings away from streams or seepages. Cascades Torrent Salamanders can be locally common to abundant where they occur.

MacCraken (2004) recently described the first Cascade Torrent Salamander nest. The nest was found on 14 August 2003 in a 2nd-order headwater stream on the west slope of the Cascade Mountains in Skamania County. The nest, containing 5 eggs, was found under a cobble-sized (14 x 15 x 5 cm) rock in the middle of a calm stretch of the stream channel 10 cm deep x 60 cm wide x 72 cm long. The eggs were not attached to the substrate or each other. This differs from other Rhyacotriton that are described as laying eggs in deep cracks and crevices of springs and seeps.

State Status Comments

The relatively small range and narrow habitat requirements contribute to the species' current status. Mature forests, the optimal habitat for this species, have been greatly reduced by frequent harvest intervals over much of the species' range.

Inventory and Research Needs

Distribution and natural history should continue to be investigated. Habitat affinities for larval and adult salamanders, especially egg-laying habitat need to be better understood. Research is needed on the effects of roads and logging population persistence. Research addressing the seasonal movement patterns, especially the recolonization abilities of this species, is also needed.

Threats and Management Concerns

Management activities that alter the hydrology, water temperature or integrity of small streams, headwaters and seeps are reported to cause density declines in other torrent salamander species. Increases in sedimentation may be particularly problematic for this group.

Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

References

Leonard et al. (1993), MacCracken (2004), Nijhuis and Kaplan (1998), Nussbaum et al. (1983), Nussbaum and Tait (1977), Petranka (1998), Stebbins and Lowe (1951), Welsh and Lind 1996.

Hallock, L.A. and McAllister, K.R. 2005. Cascade Torrent Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

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Photos

Cascade Torrent Salamander

For similar adult and larva photos, refer to Olympic or Columbia Torrent Salamander

Cascade Torrent Salamander habitat (Skamania County)

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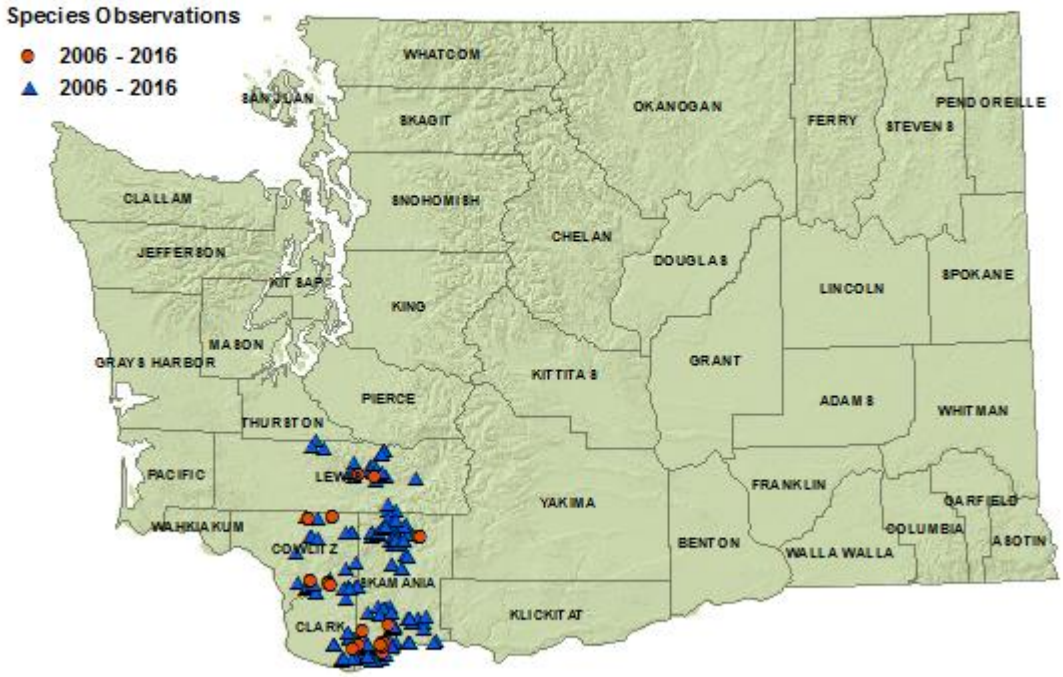
Key Features

Cascade Torrent Salamander Key Features

For similar adult and larva photos, refer to Olympic or Columbia Torrent Salamander

Distribution Map

Cascade Torrent Salamander - Known Distribution



Columbia Torrent Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Oregon

Columbia Torrent Salamander

(formerly Olympic Salamander)

Taxon, Status, and Rank

Species	*Rhyacotriton kezeri* Good and Wake formerly *Rhyacotriton olympicus*
Family	Rhyacotritonidae (Torrent Salamanders)
Status	State Candidate, Federal Species of Concern
State Rank	S3
Global Rank	G3

General Description

This is a small salamander that rarely exceeds 55 mm snout-vent length. The head is small with a short rounded snout and large prominent eyes. The body is relatively long with short limbs and a short tail. Coloration is beige-brown above and yellow to orange-yellow below. White speckling on the body tends to be more concentrated along the sides. Black speckling also exists, but is very reduced to fine flecking, also mostly along the sides. In general, this species lacks the dark dorsal and ventral spotting or blotching that is prominent in the Cascades Torrent Salamander. Adult males have prominent squared vent lobes, a trait unique to the family and the genus. The larvae have greatly reduced gills and tail fins, well-developed functional limbs, prominent dorsally positioned eyes that do not greatly protrude, and a white (young larvae) to yellow-orange belly. The eggs are unpigmented, laid singly, and not attached to the substate. Females place the eggs in concealed locations (e.g., cracks in rocks) within relatively cold, low (trickling) flow water. More than one female may place eggs in the same area. See Photos Page.

Identification Tips

The large size of the eyes (eye diameter approximately equal to snout length), relatively short rounded snout and generally yellow coloration of the belly are features that help distinguish torrent salamanders from other Washington salamanders. Adult male torrent salamanders can be distinguished from all other salamanders by the presence of prominent squared vent lobes. Superficially, metamorphosed torrent salamanders resemble Woodland Salamanders (*Plethodon* species) and Ensatina, but torrent salamanders lack nasolabial grooves and a constriction at the base of the tail (unique to Ensatina). Torrent salamanders and Rough-skinned Newts have a similar color patter, but differ in overall appearance with newts being stockier, having a thicker skin that is rough (in the terrestrial phase) and lacking costal grooves. Torrent salamander larvae are the only stream-adapted (i.e., small gills and reduced tail fin) larval salamanders in Washington with a yellow to orange belly. The color pattern and morphology of torrent salamander species are similar and variable; therefore, torrent salamander species are best identified by collection locality and how that relates to the documented ranges of each species. Leonard et al. (1993) provide more details on color pattern differences between torrent salamander species. See Key Features Page.

Phenology

Columbia torrent salamanders are active year-round. The mating season is poorly documented for the Columbia Torrent Salamander but may be prolonged, similar to the Cascade Torrent Salamander. Oviposition timing is also poorly documented but probably occurs in the spring and early summer. Based on laboratory observations, torrent salamander species may have the longest incubation period of any North American salamander, lasting 210-290 days at 8° C. The larval period is also suspected of being long, as the related Southern Torrent Salamander (*R. variegatus*) has a larval period of approximately 3.5 years.

Range

Distribution in Washington is restricted to the Willapa Hills from the Chehalis River south to the Columbia River, west of the I-5 corridor. Distribution within the range is patchy. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Columbia Torrent Salamanders inhabit relatively cold, permanent streams, seepages and waterfall splash zones, typically in areas with a thick canopy cover. They usually occur in stream segments that are shallow, slow flowing and that have gravel or rock rubble with low levels of silt. Association with rock is also typical in seepages and waterfall splash zones. Larvae are fully aquatic. Adults are strongly associated with water and individuals are almost always found in contact with either free water or saturated substratum. During rainy wet periods, individuals may be found in wet terrestrial forest settings away from streams or seepages. Columbia Torrent Salamanders can be common to abundant where they occur; they are frequently the most common amphibian in the headwater landscape.

State Status Comments

The relatively small range and narrow habitat requirements contribute to the species' current status. Mature forests, the optimal habitat for this species, have been greatly reduced by frequent harvest intervals over much of the species' range.

Inventory and Research Needs

Distribution and natural history should continue to be investigated. Habitat affinities for larval and adult salamanders, especially egg-laying habitat, need to be better understood. Research is needed on the effects of roads and logging on population persistence. Research addressing the seasonal movement patterns, especially the recolonization abilities of this species, is also needed.

Threats and Management Concerns

Management activities that alter the hydrology, water temperature or integrity of small streams, headwaters and seeps are reported to cause density declines in other torrent salamander species, but preliminary data on this species suggest that they tolerate alteration better than other torrent salamander species (*Rhyacotriton* species). Increases in sedimentation that may be particularly problematic for other torrent salamander species may be less problematic for this species.

References

Leonard et al. (1993), Nijhuis and Kaplan (1998), Nussbaum et al. (1983), Nussbaum and Tait (1977), Petranka (1998), Stebbins and Lowe (1951), Welsh and Lind 1996.

Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Personal communications: Marc Hayes

Hallock, L.A. and McAllister, K.R. 2005. Columbia Torrent Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Photos

Adult

Adult female (Pacific County)

Habitat (Pacific County)

Key Features

Adult

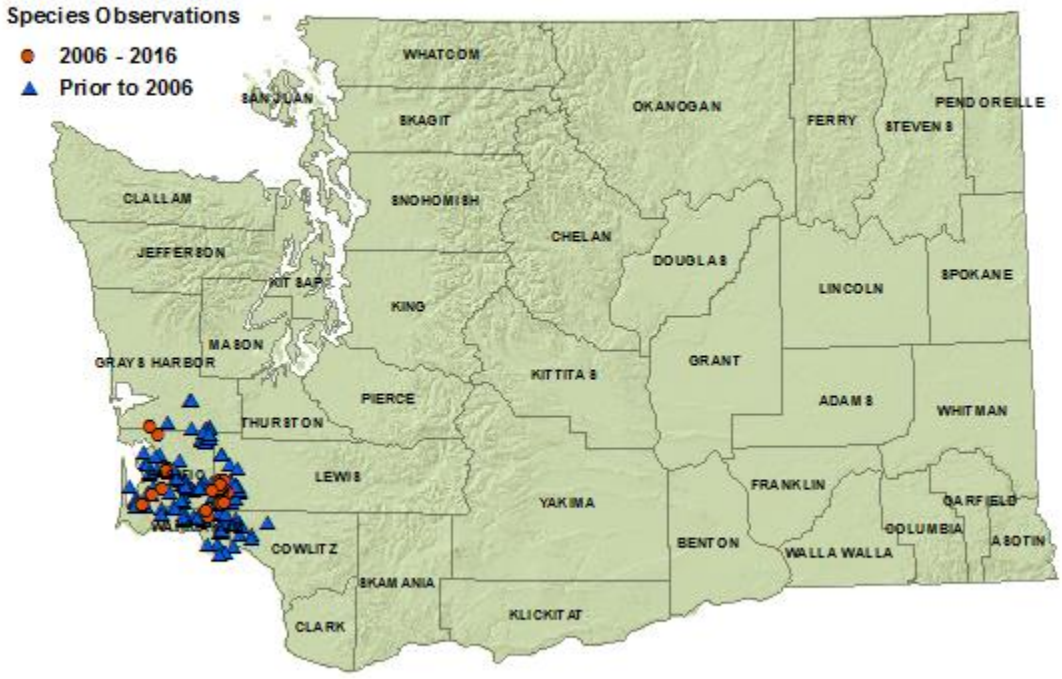
Close-up of adult showing large, bulging eyes and short, rounded snout.

Close-up of larva showing tiny gills and small, steamlined eyes.

For similar larva photo, refer to Olympic Torrent Salamander

Distribution Map

Columbia Torrent Salamander - Known Distribution



Olympic Torrent Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Olympic Torrent Salamander

(formerly Olympic Salamander)

Taxon, Status, and Rank

Species	*Rhyacotriton olympicus* Gaige formerly *Rhyacotriton olympicus*
Family	Rhyacotritonidae (Torrent Salamanders)
Status	State monitor, Federal Species of Concern
State Rank	S3
Global Rank	G3

General Description

This is a small salamander that rarely exceeds 60 mm snout-vent length. The head is small with a short rounded snout and large prominent eyes. The body is relatively long with short limbs and a short tail. Coloration is brown above and yellow to orange-yellow below. White speckling on the body tends to be more concentrated on the sides. This species generally lacks dark dorsal spotting or blotching, but may have ventral spotting. Males have prominent squared vent lobes, a trait unique to the family and the genus. The larvae have greatly reduced gills and tail fins, well-developed functional limbs, prominent dorsally positioned eyes that do not greatly protrude, and a white (young larvae) to yellow-orange belly. Eggs have not been found in the wild, suggesting that females hide them well, perhaps in fractured rock or deep in springs. As in other members of the genus, the eggs are thought to be unpigmented, laid singly, and unattached to the substrate. See Photos Page.

Identification Tips

The large size of the eyes (eye diameter approximately equal to snout length), relatively short rounded snout and generally prominently yellow component to the belly color are features that help distinguish torrent salamanders from other Washington salamanders. Adult male torrent salamanders can be distinguished from all other salamanders by the presence of prominent squared vent lobes. Superficially, metamorphosed torrent salamanders resemble Woodland Salamanders (*Plethodon* species) and Ensatina, but torrent salamanders lack nasolabial grooves and a constriction at the base of the tail (unique to Ensatina). Torrent salamanders and Rough-skinned Newts have a similar color pattern, but differ in overall appearance with newts being stockier, having a thicker skin that is rough (in the terrestrial phase) and lacking costal grooves. Torrent salamander larvae are the only stream-adapted (i.e., small gills and reduced tail fin) larval salamanders in Washington with a yellow to orange belly. The color pattern and morphology of torrent salamander species are similar and variable; therefore, torrent salamander species are best identified by collection locality and how that relates to the documented ranges of each species. Leonard et al. (1993) provide more details on color pattern differences between torrent salamander species. See Key Features Page.

Phenology

Olympic Torrent Salamanders may be active year-round, at least at low elevations. The mating season is undocumented for the Olympic Torrent Salamander but may be prolonged, similar to the Cascade Torrent Salamander. Oviposition timing is also undocumented but if similar to other torrent salamanders, may occur in the spring and early summer. If similar to the Southern Torrent Salamander (*R. variegatus*), the Olympic Torrent Salamander may have a long incubation period, which, based on laboratory observations, lasts 210-290 days at 8° C, longer than any other North American salamander. Similarly, the larval period is thought to be long (> 3 years).

Range

This species is found only on the Olympic Peninsula of Washington. Distribution within the range is patchy. See Distribution Map.

For more information on this species, see NatureServe Explorer.

Habitat and Habits

Olympic Torrent Salamanders inhabit relatively cold, permanent streams, seepages and waterfall splash zones, typically in areas with a thick canopy cover. They usually occur in stream segments or off-channel habitats that are shallow, slow and that have gravel or rock rubble that is silt-free. Association with rock is also typical in seepages and waterfall splash zones. Larvae are fully aquatic. Adults are strongly associated with water and individuals are almost always found in contact with either free water or saturated substratum. During rainy wet periods individuals may be found in wet terrestrial forest settings away from streams or seepages. Olympic Torrent Salamanders can be common to abundant where they occur.

State Status Comments

The Olympic Torrent Salamander is one of relatively few vertebrate species endemic to Washington. The relatively small range and narrow habitat requirements contribute to the species' current status. Mature forests, the optimal habitat for this species, have been reduced by harvests throughout the low-elevation portion of this species' range.

Inventory and Research Needs

Distribution and natural history should continue to be investigated. Habitat affinities for larval and adult salamanders, especially egg-laying habitat need to be better understood. Research is needed on effects of roads and logging on population persistence. Research addressing the seasonal movement patterns, especially the recolonization abilities of this species, is also needed.

Threats and Management Concerns

Management activities that alter the hydrology, water temperature or integrity of small streams, headwaters and seeps are reported to cause density declines in other torrent salamander species. Increases in sedimentation may be particularly problematic for this group.

References

Leonard et al. (1993), Nijhuis and Kaplan (1998), Nussbaum et al. (1983), Nussbaum and Tait (1977), Petranka (1998), Stebbins and Lowe (1951), Welsh et al. (1998).

Photos

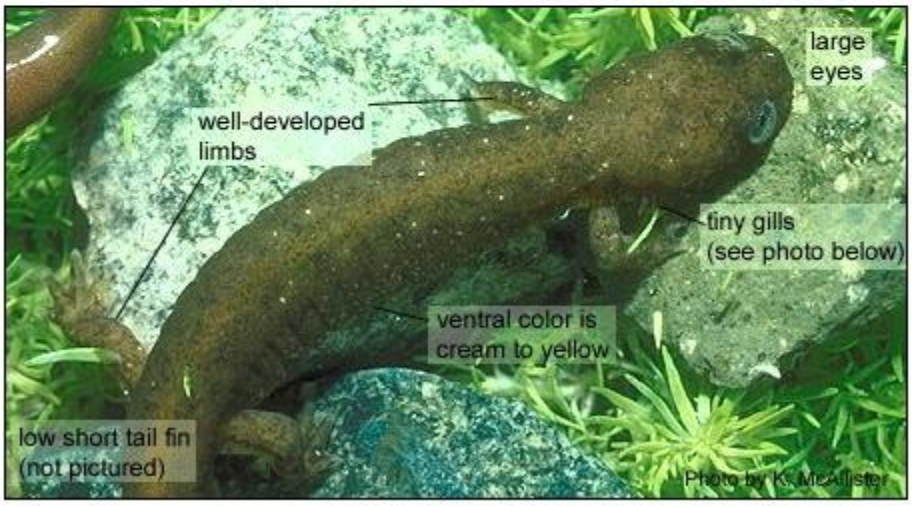
Olympic Torrent Salamander

Adult (Mason County)

larva (Mason County)

Key Features

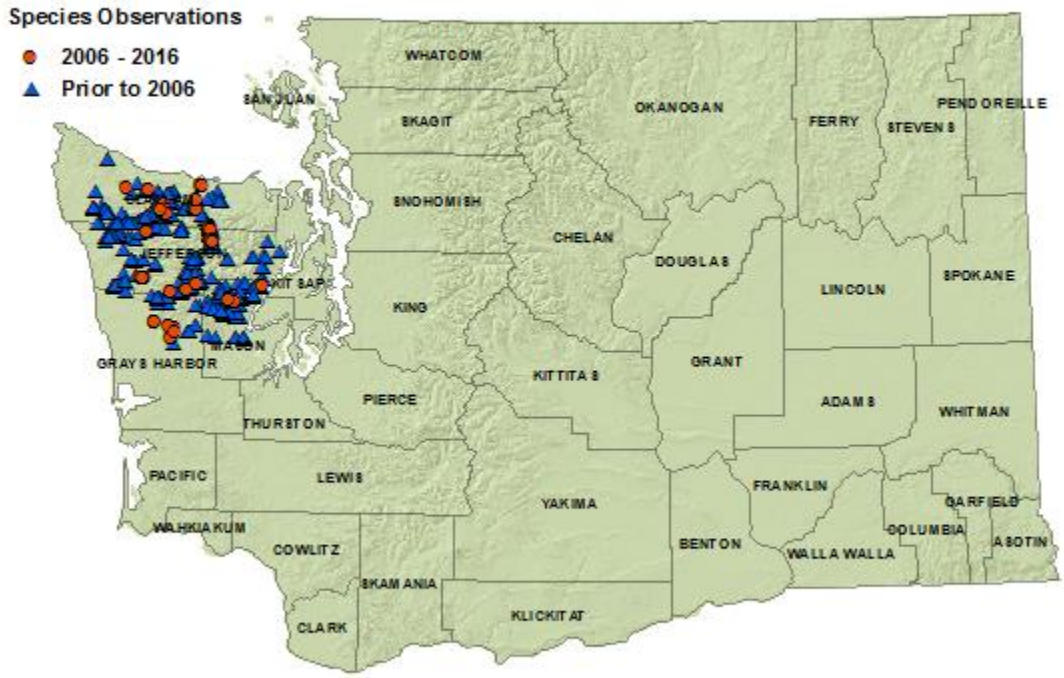
Adult (Mason County)



Larva (Mason County)

Distribution Map

Olympic Torrent Salamander - Known Distribution



Long-Toed Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog

Long-toed Salamander

Taxon, Status, and Rank

Species	*Ambystoma macrodactylum* Baird, 1849
Family	Ambystomatidae (Mole Salamanders)
Status	None
State Rank	S5
Global Rank	G5

General Description

This is a medium-sized dark gray or black salamander with an irregular yellow, olive or green dorsal stripe, distinct costal grooves, a broad head and rounded snout. Adults range in size from 5.0 to 8.1 cm (2 1/8 – 3 1/4 in.) snout-vent length. The dorsal stripe is often irregular and broken into spots. The sides of the body have blue or white speckling. The underside is black or gray. The tail is laterally compressed. The common name refers to the unusually long fourth hind toe (next to the outer-most toe). During the breeding season males have a swollen vent.

Hatchlings are 6-12 mm total length and have balancers (rod-like structures on each side of the head). Larvae are typical pond type with large gills and a high tail fin. Gill filaments are "ragged" and uneven in length. The top gill filament is usually longer than the remaining gill filaments on the stalk. Fewer than 13 gill rakers exist on the anterior face of the third gill arch. Larvae rarely exceed 85 mm total length. The dorsal stripe develops at metamorphosis.

Egg laying behavior, with eggs being laid both singly and in masses, is highly variable. Some variability is geographic and may reflect incomplete understanding of Long-toed Salamander systematics. Eggs may be attached to vegetation, the underside of logs or laid unattached on bare sediments. Both single eggs and egg masses may be present at the same breeding site. Single eggs may be spread throughout the habitat or clustered in small clumps on vegetation. The egg masses typically contain 10-20 eggs, but smaller or larger clusters are common. Individual eggs (ovum and gelatinous envelope together), whether laid singly or in a mass, measure 10 mm or greater in diameter. The ova are approximately 2.0 - 2.5 mm in diameter, with dark animal poles and gray or white vegetal poles. Except in newly laid eggs, the gelatinous envelope is loose and watery and does not hold its shape out of water. Development time to hatching is 2-5 weeks depending on water temperature. See Photos Page.

Identification Tips

The Northwestern Salamander has parotoid glands behind the eyes and a glandular ridge along the dorsal margin of the tail and lacks a dorsal stripe. The Tiger Salamander has spots and blotches that extend onto the sides of the body and may extend onto the belly. The fourth hind toe is not exceptionally long and the Tiger Salamander lacks white or blue speckling on the sides of the body. Washington Woodland Salamanders (Plethodontids) differ in having a uniformly narrow body shape, a more pointed snout that narrows in front of the eyes, nasolabial grooves, a fourth hind toe similar in length to the other toes, and a tail that is round in cross section not laterally compressed.

Larvae - Newt larvae have eyes on the margin of the head, a snout that narrows in front of the eyes, a faint horizontal stripe from the snout through the eye and one or two rows of white or yellow spots down the back and sides.

At hatching, Long-toed Salamanders have balancers and Tiger Salamanders do not. Otherwise, the small larvae (less than 25 mm TL) of the three species of Mole Salamander (Genus Ambystoma) native to Washington are similar in appearance. With experience, one can recognize differences in the gills, the way the larvae hold their gills, head size, head shape and coloration. Differences are subtle and may not be obvious to the novice. Corkran and Thoms (1996) illustrate these differences in their field guide.

Larger larvae are easier to distinguish. Tiger Salamander and Northwestern Salamander larvae grow larger (>77 mm total length, 35 mm snout-vent length) and develop huge gills and robust legs and toes. Northwestern Salamander larvae have glandular patches on the head and tail. Tiger Salamander larvae have more than 13 gill rakers on the anterior face of the third gill arch.

Eggs – Tiger Salamanders and Rough-skinned Newts lay small single eggs (ovum and gelatinous envelope together) that are less than 10 mm in diameter when fully expanded. Pacific Treefrogs and Great Basin Spadefoots have egg masses that are similar, but both species have individual eggs (ovum and gelatinous envelop together) that are 5 mm or less in diameter when fully expanded. See Key Features Page.

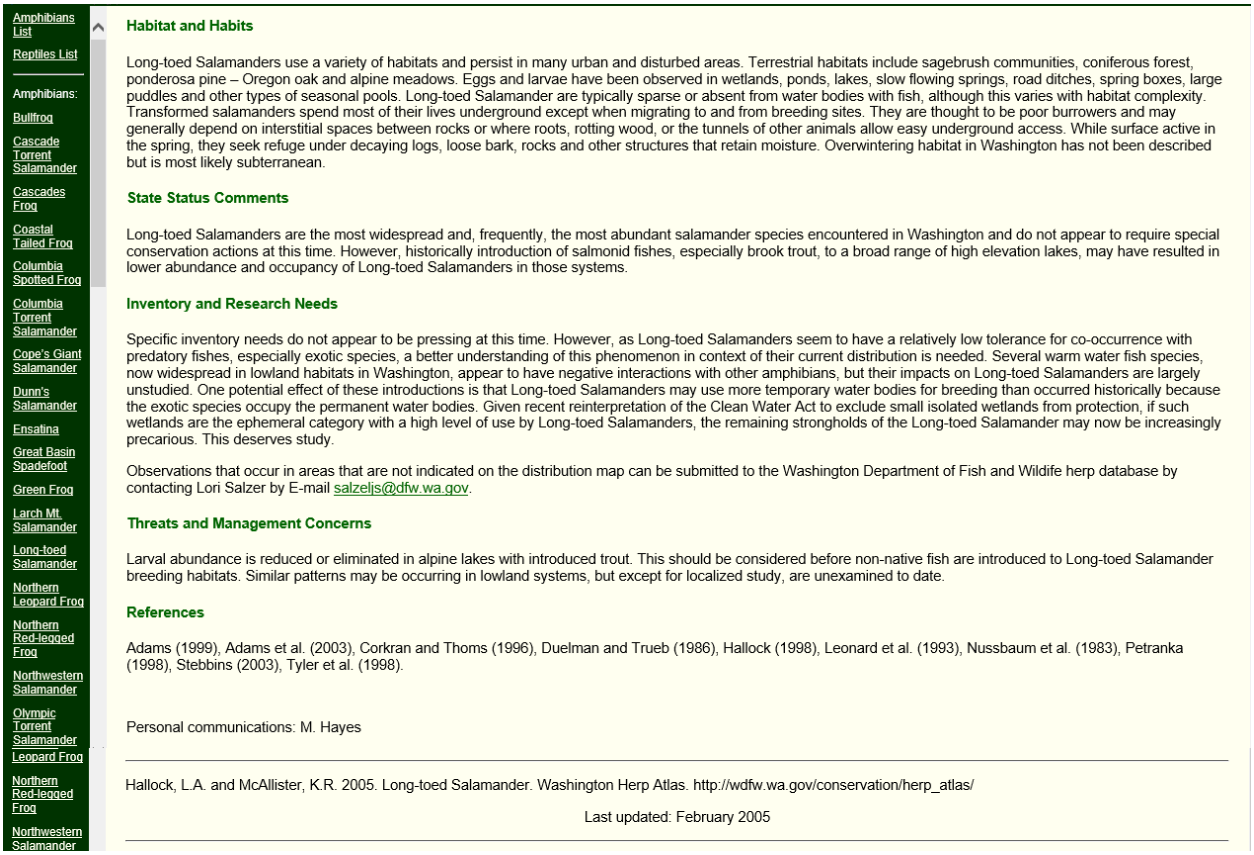
Phenology

Long-toed Salamanders in lowland areas of western Washington start breeding as early as January. In the Columbia Basin, egg laying takes place primarily in March and April. Breeding at higher elevations starts later and timing varies depending on elevation and site conditions. Egg development time to hatching is two to three weeks depending on water temperature. The length of the larval period is variable depending on site conditions; food resources and temperature appear to strongly influence differences. Metamorphosis takes place in the summer or fall of the first year. At high elevations, larvae may overwinter and transform the following year.

Range

Long-toed Salamanders are the most widespread, possibly the most common salamander species in Washington and occur in all ecoregions. Occurrences are sparse in coastal areas of the Pacific Northwest Coast Ecoregion and in the driest portions of the central arid shrub-steppe zone of the Columbia Basin Ecoregion. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.



Photos (next page)

Long-toed Salamander

Adult (Pierce County)

Adult (Thurston County)

Single egg (Thurston County)

Larva (Klickitat County)

Breeding site (Adams County)

Breeding site (Stevens County)

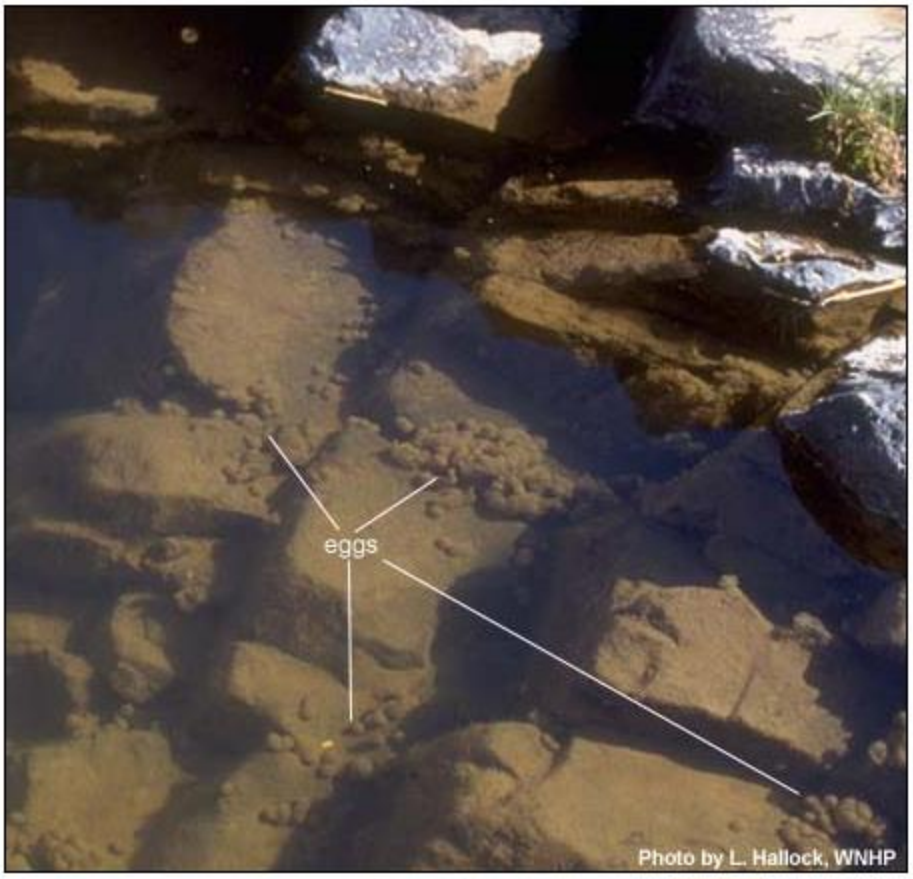
Breeding site (Douglas County)

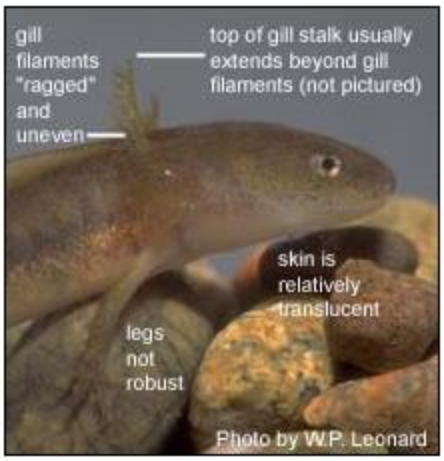
Breeding site (Stevens County)

Key Features (next page)

Long-toed Salamander Key Features

Adult (Pierce County)





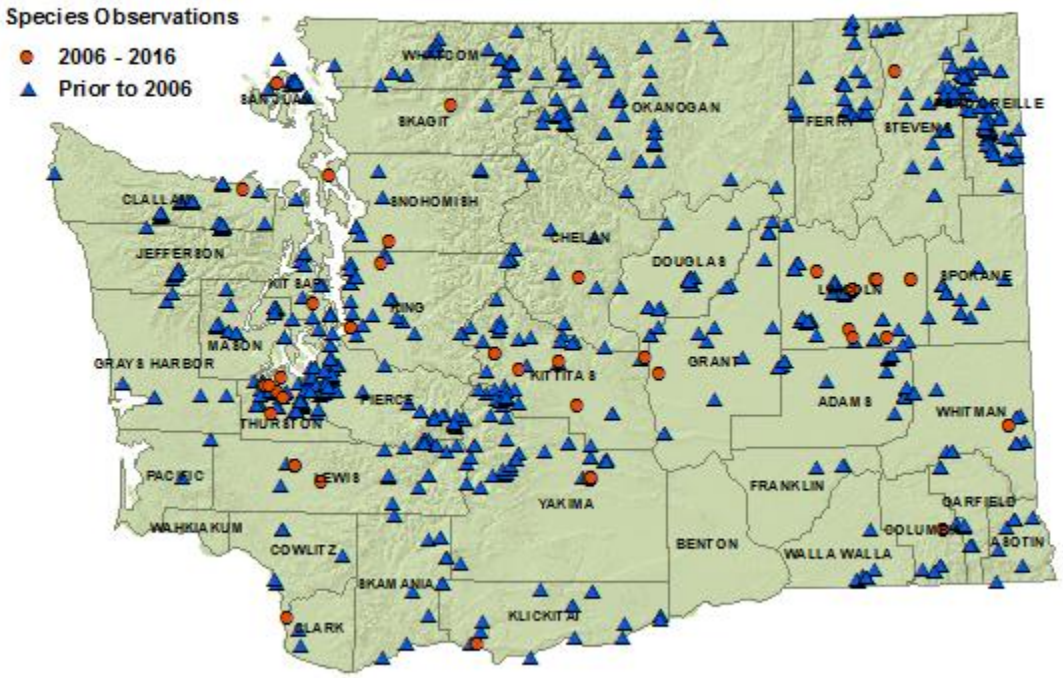
Larva (Klickitat County)

Adult (Pend Orielle County)

Close-up of snout

Distribution Map

Long-toed Salamander - Known Distribution



Northwestern Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Northwestern Salamander

Taxon, Status, and Rank

Species	*Ambystoma gracile* (Baird)
Family	Ambystomatidae (Mole Salamanders)
Status	None
State Rank	S5
Global Rank	G5

General Description

A large, stocky, brown salamander with a rounded snout, prominent parotoid glands (poison glands) behind the eyes, distinct costal grooves and a laterally compressed tail with a glandular ridge on the dorsal surface. Adults are 80-90 mm snout-vent length, 140-220 mm total length. During the breeding season, males have conspicuously swollen vent lobes and females have a rounded protuberance around the vent.

The egg masses are firm, globular and attached to sturdy plant stalks and twigs. The egg masses may be round or elongate and are about the size of an orange measuring 8-15 cm in diameter. Ova are light brown at one pole and cream colored at the other. When first laid the gel around the eggs has a white tint. Fully expanded egg masses exposed to sunlight develop a distinct greenish tinge from symbiotic algae that grow in the inner jelly layer.

Larvae are pond-type with large gills and a high tail fin. Hatchlings have translucent skin with dark spots and yellow bellies. Rod-like extensions on the head, called balancers, are present. Small larvae are typically olive or brown in color, usually with dark spots or mottling. The gill filaments are closely packed on the gill stalks and are similar in length. Hind limbs develop after the larvae grow to 25 mm total length. Large larvae (>50 mm SVL), are olive to brown in coloration often with dark spots or mottling. They develop huge gills with thick gill stalks, robust legs and glandular patches on the head and tail. The glandular patches are less conspicuous than on transformed juvenile and adults. The belly coloration tends to be cream, gray or brown depending on the size and stage. Large larvae and gilled adults (neotenes) can grow larger than 77 mm total length. The number of gill rakers on the anterior arch of the 3rd gill arch number less than 13 (range 7-10). See Photos Page.

Identification Tips

Transformed Northwestern Salamanders are easily distinguished from all other Washington salamanders by the conspicuous parotoid glands on the head and the glandular ridge on the tail.

Eggs: In Washington, only Northwestern Salamanders have large globular egg masses that are firm to the touch.

Larvae: Newt larvae differ in having eyes on the margin of the head, a snout that narrows in front of the eyes, a faint horizontal stripe from the snout through the eye, and one or two distinct rows of white spots down the back and sides.

No obvious external characteristics distinguish small Long-toed Salamander larvae (less 25 mm TL) from Northwestern Salamander larvae. With experience, one can recognize subtle differences in the gills, the way the larvae hold their gills, head size, head shape and coloration. Corkran and Thoms (1996) discuss some of these differences in their field guide.

In general, Long-toed Salamander larvae have gill filaments that are "ragged" and uneven in length. The top gill filament is usually longer than the rest of the gill filaments on the stalk. The skin coloration tends to remain somewhat translucent and is less likely to have distinct spotting. Hind leg development starts before larvae reach 25 mm TL and larvae remain relatively small (rarely exceed 80 mm total length) and never develop huge gills or robust legs.

The range of the Northwestern Salamander overlaps with the Tiger Salamander only in southwestern Klickitat County where one Tiger Salamander specimen was collected in the 1930s. The location is isolated from the rest of the Tiger Salamander range and the exact collection site is unknown. Larvae of these two species are similar in general appearance but large Northwestern Salamanders usually have glandular patches on the head and tail. Gill counts can be used to confirm species of larvae that lack glandular patches. Tiger Salamanders have more than 13 gill rakers on the anterior surface of the 3rd gill arch whereas Northwestern Salamanders have fewer. See Key Features Page.

Phenology

Metamorphosed forms spend most of their lives in the subterranean environment and are rarely seen except for spring migrations to breeding ponds. Surface activity is nocturnal. They shelter under woody debris, ground litter, and accumulated duff below sword ferns. Breeding starts in late January through March at lower elevations (less 1000 ft), later at higher elevations. The embryos take one to two months to develop. The empty gelatinous egg masses persist for weeks to months after hatching is complete. Larvae may transform in their second year around 50 mm SVL (75-90 mm TL) or may remain permanently aquatic. Observations at some sites suggest that larva may transform in the first year under certain conditions (pond drying). Ponds often contain many different size classes of larvae, including gilled adults (neotenes). Populations are highly polymorphic, consisting of populations that always transform, populations that never transform and populations that metamorphose depending on environmental conditions Gilled adults tend to dominate high-elevation populations.

Range

In Washington, Northwestern Salamanders occur primarily west of the Cascade Crest in the Pacific Coast, Puget Trough and West Cascades Ecoregions. They also occur east of the Cascade Crest in some areas of the East Cascades Ecoregion. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Oregon

Habitat and Habits

Mesic forests are the main terrestrial habitat occupied by this species. One Washington study found them to be less abundant in young forest when compared to older forests, but other studies have found little correlation of abundance with stand age. Northwestern Salamanders use permanent water bodies for breeding. Breeding habitats include ponds, wetlands, lakes, road ditches and slow moving creeks.

Larvae and gilled adults can persist in the presence of introduced trout but may be forced to use sub-optimal habitats and to forage at night. This may result in reduced size and recruitment. Anecdotal observations suggest that large populations of introduced warm-water fish, such as Largemouth Bass, may deter salamander breeding.

State Status Comments

This species is common and occurs throughout western Washington.

Inventory and Research Needs

Observations that occur in areas that are not indicated on the distribution map can be submitted to the Washington Department of Fish and Wildife herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Experimental research that addresses the impact of introduced warm-water fish on Northwestern Salamander populations is of interest.

Current or Recent Research in Washington

Angela Stringer conducted a telemetry study of Northwestern Salamanders in Pierce County between 1995 and 1998 while a student at University of Washington.

Threats and Management Concerns

Activities that alter breeding habitat or access to breeding habitat, such as clear-cutting, wetland drainage, beaver control, land conversion and introduced fish, are most likely detrimental to this species.

References

Aubry (1997, 2000), Aubry and Hall (1991), Aubry et al. (1997), Bury and Corn (1988), Corkran and Thoms (1996), Corn and Bury (1991), Eagleson (1976), Eagleson and McKeown 1980, Grialou (2000), Hallock and Leonard 1996, Larson and Hoffman (2002), Litch 1975, Nussbaum et al. (1983), Petranka (1998), Ruggiero et al. (1991), Snyder (1956,1963), Sprules (1974), Stebbins (1951, 2003), Tayler et al. (1998).

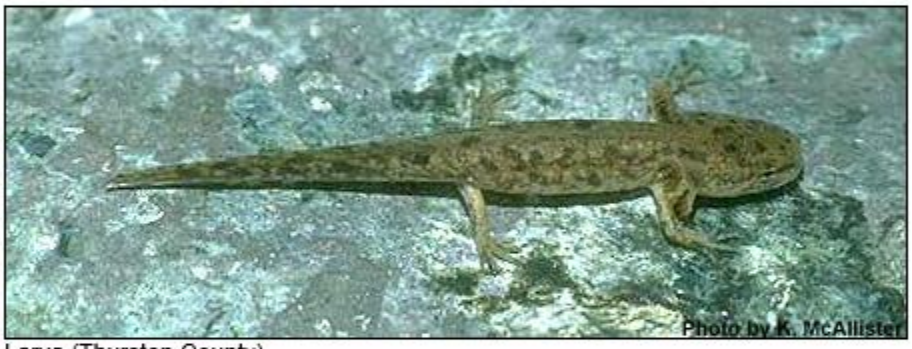
Personal communications: Angela Stringer

Hallock, L.A. and McAllister, K.R. 2005. Northwestern Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos

Adult male during breeding season (Thruston County)



Larva (Thurston County)

Egg masses (Thurston County)

Key Features

Adult male during breeding season (Thurston County)

Gilled adult (Thurston County)

Adult captured on land (Pacific County)

Adult captured in water during breeding season (Thurston County)

Female vent during breeding season (Thruston County

Male vent during breeding season (Thurston County)

Second year larva (Thurston County)

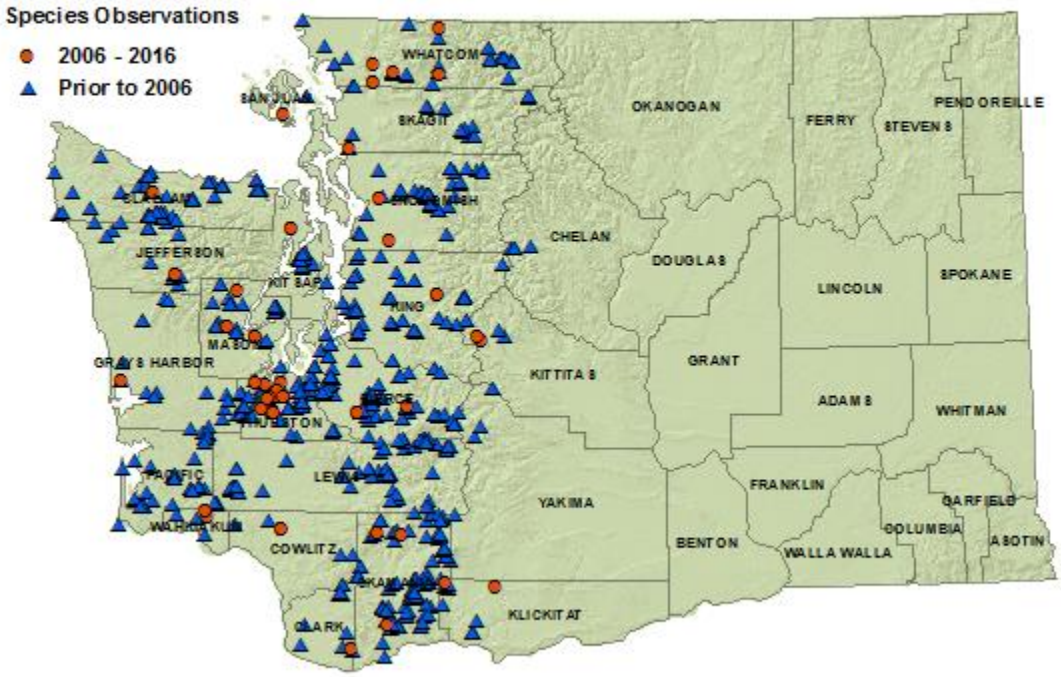
Single egg mass (Thurston County). Mass retains shape out of water and feels solid.

Head and gills of large larva

Second year larva (Thurston County)

Distribution Map

Northwestern Salamander - Known Distribution



Tiger Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Oregon

Tiger Salamander

Taxon, Status, and Rank

Species	*Ambystoma tigrinum* Baird and Girard
Family	Ambystomatidae (Mole Salamanders)
Status	State Monitor
State Rank	S3
Global Rank	G5

General Description

A large, stocky, blotched salamander (to 16.2 cm snout-vent length) with a rounded blunt snout, small protruding eyes, distinct costal grooves and a laterally compressed tail. Ground coloration is dark with olive or yellow blotches over the entire surface of the body. There are paired tubercles on the undersides of the feet. Eggs are small (ovum and gelatinous envelope < 1 cm) and laid singly on plant stalks and twigs. Larvae are pond-type. The gills are large and the filaments are similar in length along the entire stalk. Gilled adults (neotenes) are large (to 17.5 cm snout-vent length) with a wide head, small eyes and wide gill stalks. See Photos Page.

Identification Tips

The Long-toed Salamander commonly occurs with the Tiger Salamander. Eggs and larvae of the two species are similar, however, Tiger Salamander eggs are smaller (ovum and gelatinous envelope < 1 cm) with a light colored ovum and larva, the hatchlings do not have balancers, and larvae have large gills with similarly sized filaments from top to bottom. Metamorphosed Tiger Salamanders have green or yellow blotches over the entire surface of the body, a fourth toe that is not exceptionally long and tubercles on the undersides of the feet. In Klickitat County, the Rough-Skinned Newt also occurs with the Tiger Salamander. Newt eggs are usually hidden within aquatic vegetation. Newt larvae have a small, narrow head with eyes on the lateral edges. There is a dark horizontal stripe through the eye, a line of white dots on the sides, and a pink belly. See Key Features Page.

Phenology

Metamorphosed forms spend most of their lives in the subterranean environment and are rarely seen except for spring migrations to breeding ponds. Surface activity is nocturnal. Breeding takes place in mid-March to early April in the Columbia Basin. Little is known about the timing of metamorphosis in Washington. Larvae are capable of transforming in the fall of their first year but most apparently do not. Ponds often contain many different size classes of larvae, including huge gilled adults.

Range

Tiger Salamanders live mostly within the Columbia Plateau Ecoregion. Occurrences in the Okanogan and Eastern Cascades Ecoregions are limited to the steppe and ponderosa pine vegetation zones. Larvae of this species, often called "water dogs" are used as fish bait. Escaped and released animals may populate some areas. Tiger Salamanders occur in ponds associated with the Wahluke and Eltopia branches of the Columbia Basin Irrigation Project and may be dispersing to new areas along irrigation canals. An isolated record for Klickitat County is documented through animals collected in the 1930s. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Occurrence is primarily in arid areas that support shrub-steppe vegetation. In the Colville area, Tiger Salamanders occupy lower elevations in dry habitat types characterized by ponderosa pine/Douglas fir forest. Little is known about terrestrial habitat requirements in Washington. Breeding takes place primarily in perennial ponds, although seasonal water bodies are also used. Gilled adults occur in perennial ponds without fish.

State Status Comments

The status is based on the small number of populations, a range that is restricted to a region heavily altered for agriculture, and a lack of information about this species.

Inventory and Research Needs

Information is needed on the distribution of populations, species life history, population vulnerabilities, and terrestrial habitat requirements.

Threats and Management Concerns

Tiger Salamanders often do not persist in the presence of introduced predatory fish. Larval die-offs have been reported in the western United States, including Lincoln County, Washington. Harvest of the larvae for bait is a potential threat to some populations.

References

Corkran and Thoms (1996), Leonard et al. (1993), Nussbaum et al. (1983), Stebbins (1985).

Personal communications: L. Aker, C. Loggers.

Hallock, L.A. and McAllister, K.R. 2005. Tiger Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Tiger Salamander

Adult (Douglas County)

Small larva (Douglas County)

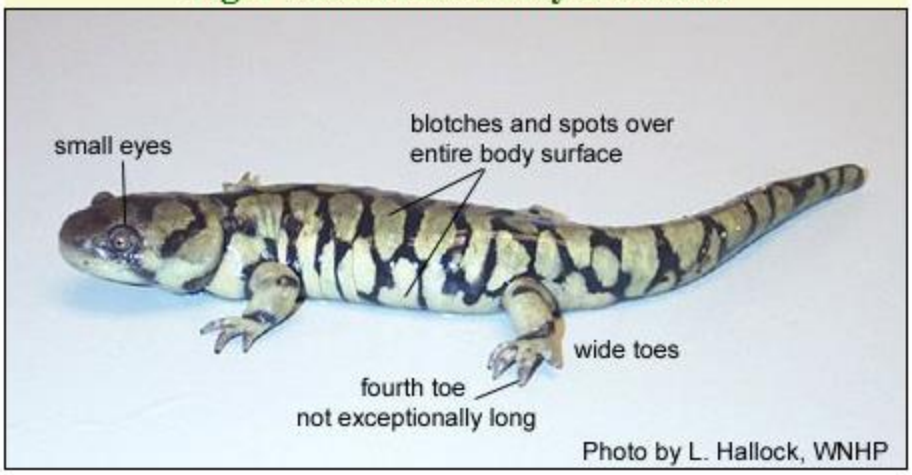
Neotene (North Dakota)

Eggs (Okanogan County)

Breeding habitat (Lincoln County)

Key Features (next page)

Tiger Salamander Key Features



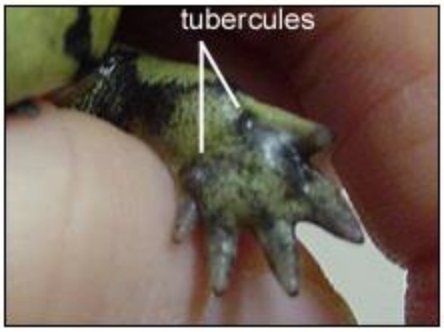
Adult (Douglas County)

Ventral view (Douglas County)

Swollen vent lobes of breeding male (Stevens County)

Small larva (Douglas County)

Neotene (North Dakota)

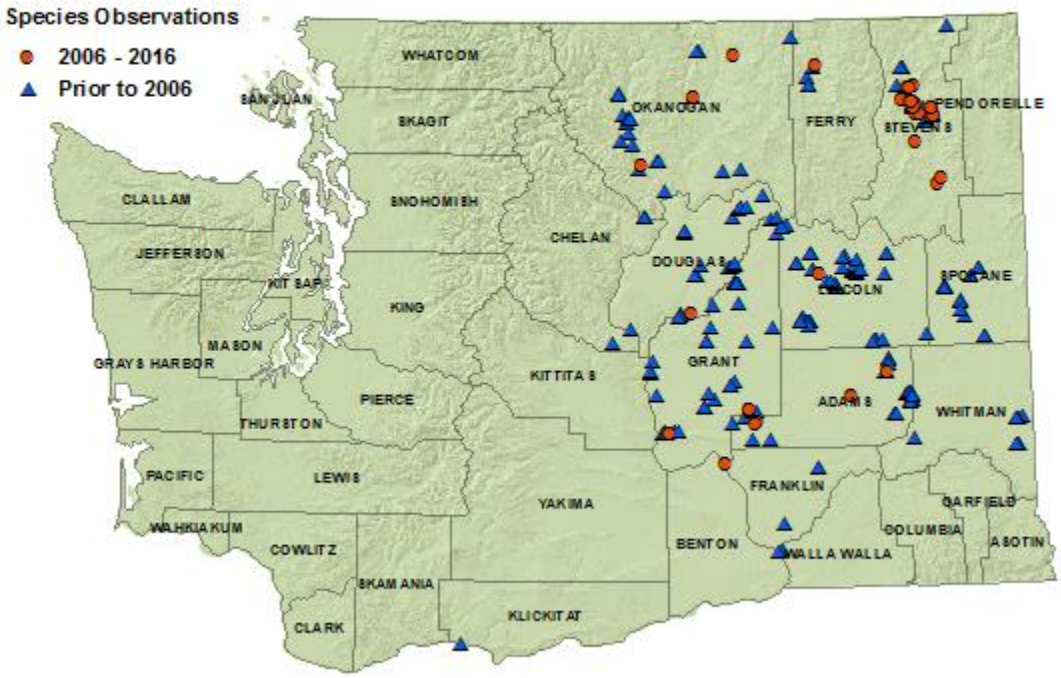


Underside of foot showing tubercules

Adult and neotene (Lincoln Co.)

Distribution Map

Tiger Salamander - Known Distribution



Rough-skinned Newt

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern

Rough-skinned Newt

Contents:

Links:

Photos
Key Features
Distribution Map

Taxon, Status, and Rank

Species	*Taricha granulosa*	(Skilton, 1849)
Family	Salamandridae (Newts)	
Status	none	
State Rank	S5	
Global Rank	G5	

General Description

A medium to large-sized, stocky, brown salamander with a rounded snout, rough glandular skin, and a bright orange underside. Aquatic phase males are similar but have smoother skin, enlarged forearms and a laterally flattened tail with a small but distinct tail fin. Adults are 6-9 cm snout-vent length 11-18 cm total length. During the breeding season males have conspicuously swollen vent lobes while females have only a slight conical swelling around the vent. Newly transformed juveniles resemble terrestrial adults.

The ova are small (1.8 mm diameter), laid singly and are hidden by the female in vegetation. The ovum is tan above and cream below with a thin layer of jelly surrounding the capsule. The jelly retains its shape out of water.

Larvae are pond-type with large gills and a high tail fin. The eyes are on the margin of the head, the snout narrows in front of the eyes, a faint horizontal stripe is present from the snout through the eye, and one or two distinct rows of white spots occur on the sides. A salmon colored area is present on the underside of the chest. Metamorphosis takes place when larvae are approximately 3-7 cm in total length. See Photos Page.

Identification Tips

Torrent salamanders (Rhyacotriton spp.) differ in having costal grooves, smooth skin, large eyes, white speckling on the sides of the body and the males have squared cloacal lobes. Torrent Salamanders are also much smaller (adult 4.5-5.5 cm SVL) than Rough-skinned Newts.

Larva: Rough-skinned Newts are our only salamander larvae that have eyes on the margins of the head and a snout that narrows in front of the eyes.

Eggs: The Rough-skinned Newt is one of only three Washington amphibians that lays single eggs and the only one that hides its eggs within vegetation. Tiger Salamanders lay similar sized single eggs but attach them to vegetation where the eggs are exposed. Long-toed salamanders have single eggs that are larger (> 1cm diameter including gel) with gel that does not hold its shape out of water. See Key Features Page.

Phenology

At low elevation sites in western Washington, Rough-skinned Newts are active year round. Terrestrial forms can be observed migrating in streams and creeks to ponds starting in January. Courtship displays and pairs in amplexus are most obvious in March and April at low elevation sites. Newts that occur at higher elevations start breeding soon after snow and ice melt. Eggs are laid soon after mating takes place. Newts are the last of our salamander species to breed and the last salamander larvae to hatch.

Range

In Washington, Rough-skinned Newts occur primarily west of the Cascade Crest in the Pacific Coast, Puget Trough and West Cascades Ecoregions. They also occur east of the Cascade Crest in some areas of the East Cascades Ecoregion. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Mesic forests are the main terrestrial habitat occupied by this species. Activity in terrestrial habitats occurs primarily when temperatures are moderate and the ground is wet. Activity can be diurnal or nocturnal. Breeding habitats include ponds, wetlands, lakes, road ditches and slow moving creeks.

When threatened, newts arch the head towards the tail (unken reflex). This posture reveals the bright orange coloration of the underside that warns predators of its toxicity. With the exception of the Common Garter Snake (Thamnophis sirtalis), few vertebrate predators can survive ingesting a Rough-skinned Newt. The highly toxic nature of this species allows them to be one of the few terrestrial salamanders active and conspicuous during the day. The toxin (tetrodotoxin) is produced within the skin, not secreted. Newts can be handled safely but care should be taken with small children prone to putting things in their mouths. After handling any amphibian, one should avoid touching the mucus membranes of the eyes, nose and mouth until hands have been washed.

State Status Comments

This species is common and occurs throughout western Washington. No widespread declines have been documented.

Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Inventory and Research Needs

No specific inventory or research needs are known at this time. Observations that occur in areas that are not indicated on the distribution map can be submitted to the Washington Department of Fish and Wildife herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Current or Recent Research in Washington

None at this time.

Threats and Management Concerns

In some areas, newts migrate in large groups to breeding ponds. If the migratory path crosses a road with heavy traffic, mortality can be high and could potentially threaten a local population.

References

Corkran and Thoms 1996, Nussbaum et al. 1983, Stebbins 1951.

Hallock, L.A. and McAllister, K.R. 2005. Rough-skinned Newt. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos (next page)

Rough-skinnned Newt

Terrestrial adult female

Aquatic adult male (Thurston County)

Aquatic adult male (Thurston County)

Larva (Pierce County)

Habitat (Thurston County)

Key Features

Larva (Pierce County)

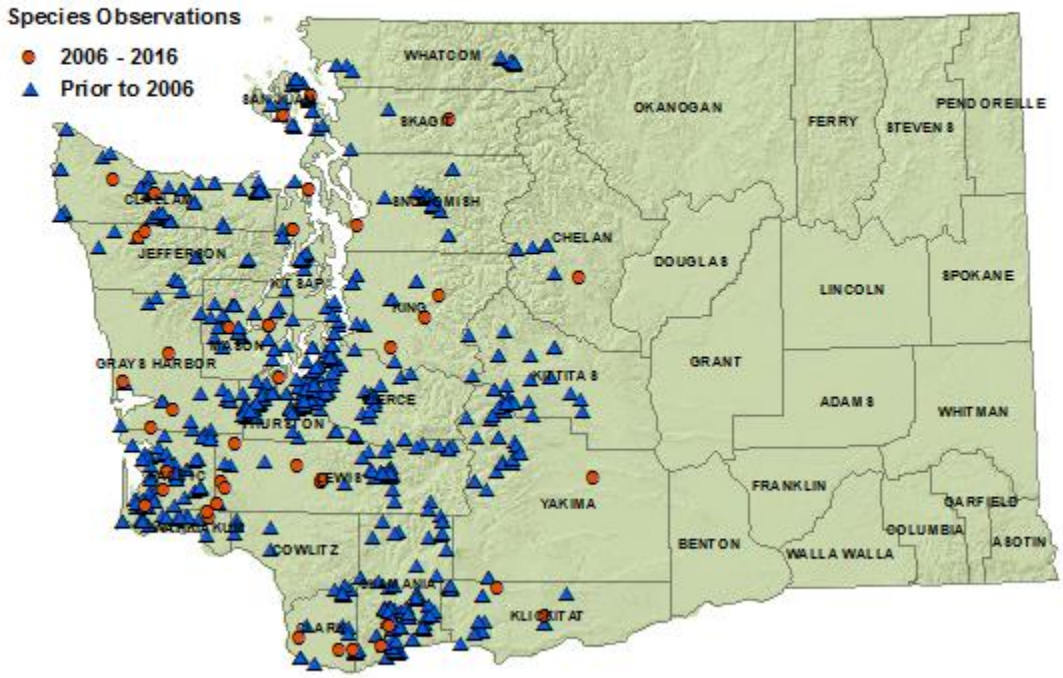
Dorsal view of larva (Skagit County)

Ventral view of aquatic male (Thurston County)

Ventral view of female (Thurston County)

Distribution Map

Rough-skinned Newt - Known Distribution



Dunn’s Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Dunn's Salamander

Taxon, Status, and Rank

Species	*Plethodon dunni* Bishop
Family	Plethodontidae (Lungless Salamanders)
Status	State Candidate
State Rank	S2S3
Global Rank	G4

General Description

A striped salamander reaching sizes of 67 to 75 mm snout-vent length, 139 to 154 mm total length (male to female size respectively). This is Washington's largest Woodland Salamander (*Plethodon* species). The sides of the body are black or dark brown with white speckling and blotches of pigmentation similar in color to the dorsal stripe. The dorsal stripe is tan, yellow or green and has dark blotches of pigmentation the same color as the sides of the body. The dorsal stripe does not extent to the tip of the tail. The belly is dark with yellow or white flecks. Coloration in juveniles is similar, but the dorsal stripe tends to be brighter with a more even edge. Melanistic individuals have not been found in Washington but do occur in Oregon. Size at sexual maturity is 50-55 mm snout-vent length. There is no free-living larval period. See Photos Page.

Identification Tips

The presence of nasolabial grooves separates Lungless Salamanders from other types of salamanders. The Woodland Salamanders (*Plethodon* species) in Washington are similar in general appearance to each other. The following traits distinguish the Dunn's Salamander: 1) the dorsal stripe of large juveniles and adults does not extend to the tip of the tail and has an uneven, "eroding" edge that is invaded by blotches of the side color, 2) the sides of the body have patchy blotches and flecks similar in color to the dorsal stripe, 3) the costal groove count is usually 15 with 2.5 to 4.0 intercostal folds between adpressed limbs. Contrary to the common name, the Western Red-backed Salamander (*Plethodon vehiculum*) often has a yellow or tan dorsal stripe. In the Willapa Hills, it is common to find individuals with black pigment invading the dorsal stripe (melanism) resulting in a dorsal stripe that may be absent, fragmented, and/or does not extend to the tip of the tail. Unlike the Dunn's Salamander, however, Western Red-backed Salamanders do not have blotches and flecks of the stripe color on the sides of the body. The Long-toed Salamander has a similar color pattern, but lacks the nasolabial grooves unique to Lungless Salamanders, has a rounded snout and the fourth hind toes are noticeably longer than the rest of the toes. See Key Features Page.

Phenology

Most surface activity takes place in the spring after snowmelt and before summer drought and in the fall after the onset of fall rains and before temperatures approach freezing. Because this species occupies wet habitats, it is sometimes active even in summer. The reproductive biology of this species is poorly known.

Range

In Washington, this species occurs in the Willapa Hills of the Olympic Physiographic Province. The range extends north to the Chehalis River and east to the Cowlitz River. This is the northern extreme of this species' range. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

All life stages are terrestrial. Dunn's Salamanders are usually associated with streams and seepages in forested habitat. Typically, they occupy the splash zone, where they can be found in bank gravel, under rocks and under woody debris. They also occupy moist talus. During rainy periods when the ground is saturated, they may be found in terrestrial habitats away from water.

State Status Comments

The state status is based on the species' limited range within Washington and its primary association with small streams that historically received little or no streamside buffers associated with logging practices.

Inventory and Research Needs

More information is needed on population dynamics and life history. Seasonal habitat associations could be better described, especially egg-laying habitat characteristics. Research needs include information on the impacts of forestry practices and the importance of large woody debris.

Threats and Management Concerns

Threats are poorly defined although the condition of riparian corridors is clearly important and should receive continued scrutiny. Removal of large woody debris from streams and terrestrial habitats may also be detrimental.

Current Research

Dunn’s Salamander Study – This study is a retrospective study that addresses the landscape and local distribution of terrestrial amphibians in timber-managed landscapes. Dunn’s salamander (Plethodon dunni) and Van Dyke’s salamander (Plethodon vandykei), two Forests and Fish Agreement (Ffr) target species, are the focus of the study. A major study focus is the pattern of associated of terrestrial amphibian with woody debris and how that may vary with other landscape and local variables. The study is intended to inform what further adaptive management may be required to address terrestrial amphibians in timber-managed landscapes. Funding is through the Cooperative Monitoring Evaluation and Research (CMER) Committee, the Adaptive Management arm of Ffr, and numerous stakeholders (major and minor private landowners, state and federal agencies, tribes, and an environmental caucus) support this study.

Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

References

Brodie (1970), Leonard et al. (1993), Nussbaum et al. (1983).

Personal communications: M. Hayes

Hallock, L.A. and McAllister, K.R. 2005. Dunn's Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Adult

Adult (Pacific County)

Dunn's Salamander habitat (Wahkiakum County)

Habitat (Pacific County)

Key Features

Adult

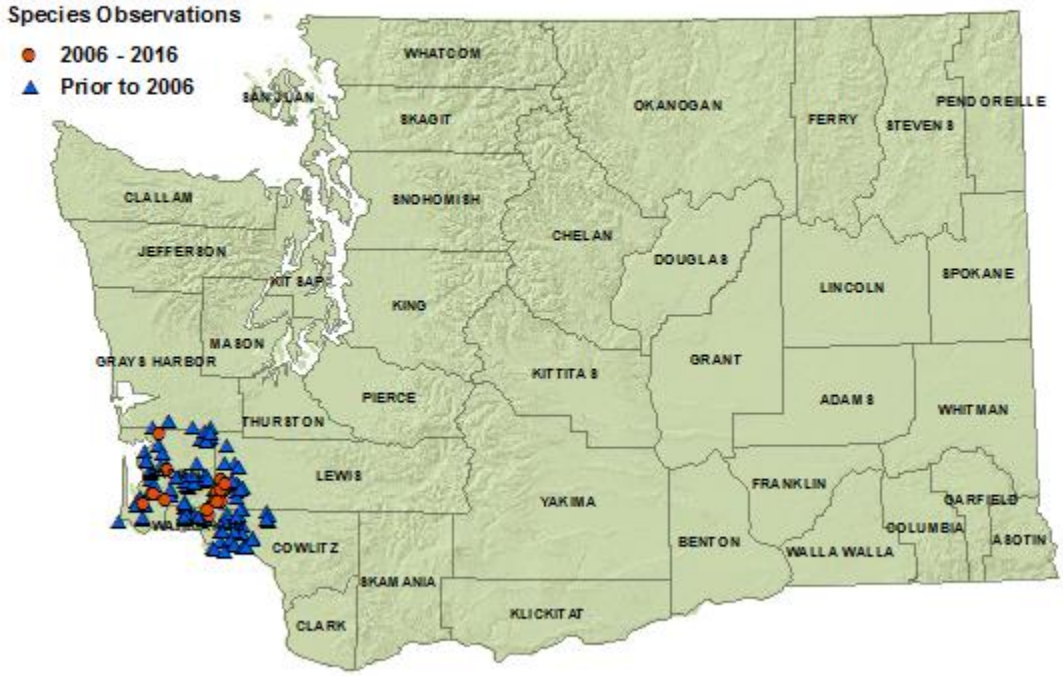
Ventral view of adult (Pacific County)

Close up showing flecks of dorsal stripe color on sides

Anterior view of adult showing nasolabial groove (Pacific County)

Distribution Map

Dunn's Salamander - Known Distribution



Ensatina

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
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Reptiles List
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Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Ensatina

Taxon, Status, and Rank

Species	*Ensatina eschscholtzii* Gray, 1850
Family	Plethodontidae (Lungless Salamanders)
Status	None
State Rank	S5
Global Rank	G5

General Description

A small, brown or orangish salamander with large dark eyes, and relatively short body and legs. Adults are 6.2 –7.6 cm (1 1/2 - 3 in.) total length. The tail is rounded in cross section and a prominent constriction exists at the base near the body. There are 12-13 costal grooves. Juveniles are dark brown with bright orange patches on the tops of the limbs near the body. Young juveniles have a silvery metal-flake pattern on a dark background on the body, but lose this pattern rapidly as they increase in size. Males have an enlarged upper lip and long, slender tails. Females have short, stout tails.

The female typically tends the eggs until the young hatch and are able to disperse. Nests have been found in rodent burrows, in decaying logs, and under slabs of wood or bark. Females sometimes lay eggs in crevices of downed logs under cover of thick moss. Clutches are typically 5-16 eggs in the Northwest. No free-living larval period exists; eggs hatch into fully formed miniature versions of the adults. See Photos Page.

Identification Tips

Ensatina is the only Washington salamander with a constriction at the base of the tail. The tailbase constriction is difficult to see in young juveniles, but these individuals consistently possess the bright orange patches on top of the limbs near the body. See Key Features Page.

Phenology

This species has not been well studied in Washington. Studies from other states have found they are surface active at night when the ground is saturated with water and temperatures are moderate, primarily in the fall, winter and spring. Based on the presence of sperm caps in the females and spermatozoa in the sperm ducts of males, breeding takes place from the time they emerge in the fall to the time they retreat below the surface in the spring. Females oviposit during spring and summer.

Range

All ecoregions west of the Cascade Crest. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Ensatina are a terrestrial species inhabiting forests stands of all ages, but they appear to be more abundant in regions with moderate rainfall among the generally higher rainfall areas in western Washington. As a consequence, Ensatina is more common along much of the west slope of the Cascade Mountains than it is in the Coast Ranges. Although less typical, they can also be found around clearcuts and other openings. They are usually found associated with woody debris including decaying logs (most often class 3) and stumps but also occur in talus and other rocky areas. Three published accounts of nests found in Washington describe use of cavities within rotting logs.

State Status Comments

This species is common and appears to be well-distributed throughout its historical range in Washington.

Inventory and Research Needs

No inventory or research needs exist at this time. Observations from areas not indicated on the map can be submitted to Lori Salzer at Washington Department of Fish and Wildlife at salzeljs@dfw.wa.gov.

Threats and Management Concerns

None at this time.

References

Aubry et al. (1988), Bury et al. (1991), Bury and Corn (1988), Corn and Bury (1991), Herrington (1988), Jones and Aubry (1985), Norman (1986), Norman and Norman (1980), Petranka (1998), Stebbins (1949), Stebbins (1985), Storer (1925)

Hallock, L.A. and McAllister, K.R. 2005. Ensatina. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos (next page)

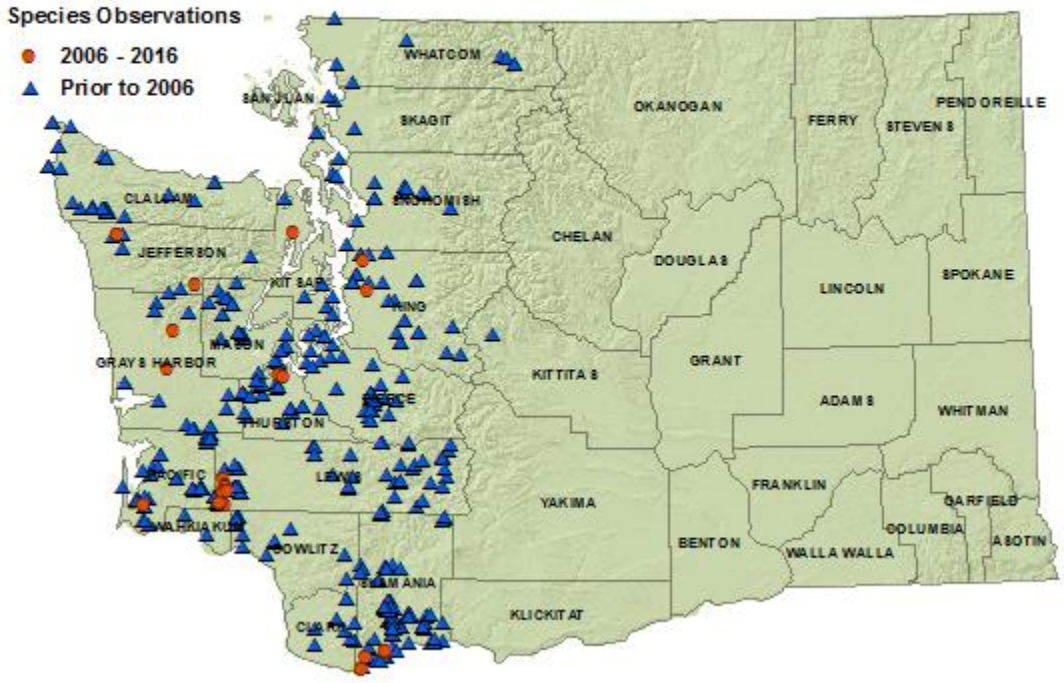
Adult (Jefferson County)

Key Features

Adult (Jefferson County)

Distribution Map

Ensatina - Known Distribution



Larch Mountain Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
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Bullfrog
Cascade Torrent Salamander
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Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Larch Mountain Salamander

Taxon, Status, and Rank

Species	*Plethodon larselli* Burns
Family	Plethodontidae (Lungless Salamanders)
Status	State Sensitive, USFWS Species of Concern
State Rank	S3
Global Rank	G3

General Description

A small, striped salamander usually less than 55 mm snout-vent length and 110 mm total length. The color on the sides is black or dark brown with white speckling and there may be flecks of the dorsal stripe color. The white speckling (iridophores) on the sides is dense on the intercostal folds but sparse or absent from the costal grooves. The dorsal stripe is reddish, yellowish, brown or tan, has a scalloped edge and extends to the tip of the tail. In adults and larger juveniles, the dorsal stripe usually stops at the base of the head. Black pigmentation (melanophores) in the middle of the stripe increases with age and is usually arranged in a herringbone pattern. In some adults, the stripe becomes obscured by the large amount of dark pigmentation. The underside is characteristically salmon-pink, red or reddish orange but a small number of individuals have white or gray undersides. The outer toe on the hind foot has only one segment (phalanx). The costal groove count ranges between 14 and16, but is usually 15. Sexual maturity is reached at approximately 40 mm snout-vent length. Coloration in juveniles is similar, but the dorsal stripe is more even-edged with brighter coloration and the red pigmentation on the belly tends to be limited to single or multiple blotches or flecks. There is no free-living larval stage. See Photos Page.

Identification Tips

The presence of the nasolabial grooves separates Lungless Salamanders from other types of salamanders. The Woodland Salamanders (*Plethodon* species) in Washington are similar in general appearance. The following traits distinguish the Larch Mountain Salamander: 1) the underside is pinkish or red, 2) the dorsal stripe has a scalloped edge with dark pigmentation in a herringbone configuration, 3) there is dense white flecking on the intercostal folds but not in the costal grooves, 4) the stripe typically ends at the base of the head and, 5) the outer toe on the hind foot is a quarter the size of the fourth toe. The traits listed above are often lacking, subtle or difficult to see in small juvenile Larch Mountain Salamanders and they can be easily confused with Western Red-backed Salamanders. However, Larch Mountain Salamanders usually have some reddish pigment blotches or flecks on the belly. See Key Features Page.

Phenology

Most of its life is spent in the subterranean environment and it is surface-active only about 20 to 90 days a year, depending on location and conditions. Surface activity is triggered whenever moisture and temperature regimes are appropriate, primarily in the spring and fall. In the Columbia River Gorge this tends to be mid-February through late-May and in the fall from late September through late-November. In the Cascade Range, the activity period is approximately April through late June and late September to late November. Ideal conditions are when temperatures are between 4 degrees and 14 degrees C and soil is saturated to a depth of about 30 cm. Breeding takes place in the autumn and spring months.

Range

This species is a Washington and Oregon endemic. In Washington, the species occurs in the Wes and East Cascades Ecoregions. The main distribution is along a 58-km stretch of the Columbia River Gorge with additional, isolated populations in the Cascade Range. They have been documented in Clark, Skamania, Lewis, King, Klickitat and Kittitas Counties. Population distribution within the range is patchy. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Larch Mountain Salamanders are associated with talus, scree, gravelly soils and other areas of accumulated rock where interstitial spaces exist between the rock and soil. Steep slopes are also an important habitat feature. They inhabit a diverse range of forested and non-forested habitats. Occupied rocky substrates in non-forested areas are usually north facing and nonvascular plants, especially mosses, dominate the ground cover. In some areas of the Cascade Mountains, Larch Mountain Salamanders inhabit old-growth coniferous forests without significant exposed rocky areas. They also inhabit lava tubes in the Mount St. Helens vicinity. In all of these habitats, important microhabitats include woody debris, leaf litter and rocks.

State Status Comments

The status is based on the small range, low number of documented populations, restricted habitat types occupied by this species, and the extinction risk to populations when their habitat is altered.

Inventory and Research Needs

Additional inventory to precisely determine the species' range is needed. Information is also needed on life history, reproductive biology, and seasonal habitat use across the species' range.

Threats and Management Concerns

Any ground-disturbing activity or land use that changes the moisture regimes and permeability of inhabited rocky substrates, such as overstory tree removal and gravel removal, may threaten populations. Chemical applications (i.e., herbicides, pesticides, fertilizers) may affect Larch Mountain Salamanders directly due to toxicity or indirectly due to loss of prey-base.

References

Aubry et al. (1987), Brodie (1970), Crisafulli (1999), Herrigton & Larsen (1987), Petranka (1998), Trippe et al. (2001).

Personal communications: Charlie Crisafulli

Hallock, L.A. and McAllister, K.R. 2005. Larch Mountain Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Photos

Adult with red dorsal stripe (Skamania County)

Adult with yellow dorsal stripe

Larch Mountain Salamander Habitat (Skamania County)

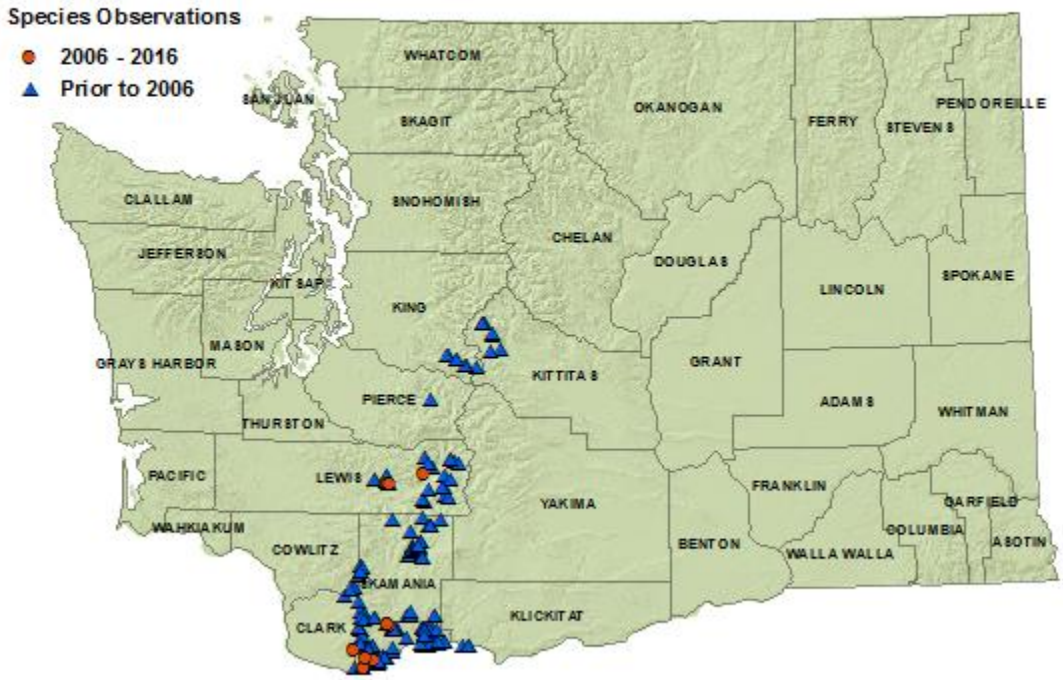
Key Features

Adult (Skamania County)

Detail of small outer hind toe

Distribution Map

Larch Mountain Salamander - Known Distribution



Van Dyke's Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
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Reptiles List
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Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog

Van Dyke's Salamander

Taxon, Status, and Rank

Species	*Plethodon vandykei* Van Denburgh
Family	Plethodontidae (Lungless Salamanders)
Status	State Candidate, USFWS Species of Concern
State Rank	S3
Global Rank	G3

General Description

A small, striped salamander, usually less than 60 mm snout-vent length and 100 mm total length. The color on the sides can be dark ("dark-phase"), dull yellow ("yellow-phase") or pinkish to red ("rose-phase") in adults. Collectively, the yellow- and red-phase (which may be difficult to distinguish) is known as "light-phase." Juveniles are similar to adults but are always dark-phase, with a distinct yellow or reddish dorsal stripe. Dark-phase animals possess a yellow throat patch. Compared to our other Woodland Salamanders (*Plethodon* species), this species is relatively stocky and long legged. It has slightly webbed toes and inconspicuous parotoid glands. The costal groove count is usually 14. Sexual maturity is reached at about 45 mm snout-vent length. Only six nests have been described. The eggs were laid in small clusters within cavities in decaying logs. Typical of Woodland Salamanders, a female attended the eggs until development was complete. There is no free-living larval period; eggs hatch into fully formed miniature salamanders. See Photos Page.

Identification Tips

The presence of nasolabial grooves separates Lungless Salamanders from other types of salamanders. The following traits separate the Van Dyke's Salamander from the other Woodland Salamanders (*Plethodon* species) in Washington: 1) the dorsal stripe usually appears to have "drips" of the color extending partially down the sides, 2) the costal groove count is usually 14, and rarely 15, 3) there are 1-1/2 to 3 costal folds between adpressed limbs, 3) darker individuals and juveniles have a yellow throat patch, and 5) there are parotoid glands present. The parotoid glands and slightly webbed toes may not be obvious to the novice. The lack of a constriction at the base of the tail distinguishes stripeless Van Dyke's Salamanders from Ensatina (provided the Ensatina does not have a regenerating tail). See Key Features Page.

Phenology

Most surface activity takes place in the spring after snowmelt and before summer drought and in the fall after the onset of fall rains and before temperatures approach freezing. More specifically, most surface activity occurs when soil moisture is high (moist or wet) and soil temperatures are between 4 degrees to 14 degrees C. Because this species may occupy wet habitats, it is sometimes surface active even in the summer. Nests found on the Olympic Peninsula (elevations below 700 meters) were laid in early May and development was completed by early October. Females brood and guard the eggs during the summer.

Range

This species is endemic to western Washington. It occurs in the Northwest Coast and Western Cascades Ecoregions with three isolated populations occupying the Olympic Peninsula, the Willapa Hills and the south Cascades Range. See Distribution Map.

For more information on this species, see NatureServe Explorer.

Habitat and Habits

Van Dyke's Salamander is usually associated with streams, seepages, and rock outcrops. In coastal areas, they are often most abundant in old forest stands that have complex stand structure and moderate to high levels of woody debris and colluvial rock present. It has also been reported from forested talus, upland sites, and in cave entrances. Interestingly, small populations survived in the Mount Saint Helens' blast zone; these were probably protected by their subterranean refugia and heavy snowpack. Large decaying conifer logs near streams appear to be important habitat for nests.

State Status Comments

Van Dyke's Salamander is one of relatively few vertebrate species endemic to Washington. It is at risk due to its limited distribution and apparently small, isolated assemblage of populations.

Inventory and Research Needs

Information is needed on natural history including distribution, population dynamics and life history. Research is needed on seasonal habitat affinities and the effects of roads and forest practices on the species' habitat and its populations.

Threats and Management Concerns

Van Dyke's Salamander may be harmed by alterations to the riparian habitats where it resides. Unaltered riparian corridors along all stream types, especially along 1st to 3rd order streams, should be maintained. Additional upland buffers would most likely benefit this species. Large woody debris, in various stages of decay, should be maintained near streams.

Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Current Research

Dunn's & Van Dyke's Salamander Study – This study is a retrospective study that addresses the landscape and local distribution of terrestrial amphibians in timber-managed landscapes. Dunn's salamander (Plethodon dunni) and Van Dyke's salamander (Plethodon vandykei), two Forests and Fish Agreement (Ffr) target species, are the focus of the study. A major study focus is the pattern of associated of terrestrial amphibian with woody debris and how that may vary with other landscape and local variables. The study is intended to inform what further adaptive management may be required to address terrestrial amphibians in timber-managed landscapes. Funding is through the Cooperative Monitoring Evaluation and Research (CMER) Committee, the Adaptive Management arm of Ffr, and numerous stakeholders (major and minor private landowners, state and federal agencies, tribes, and an environmental caucus) support this study.

References

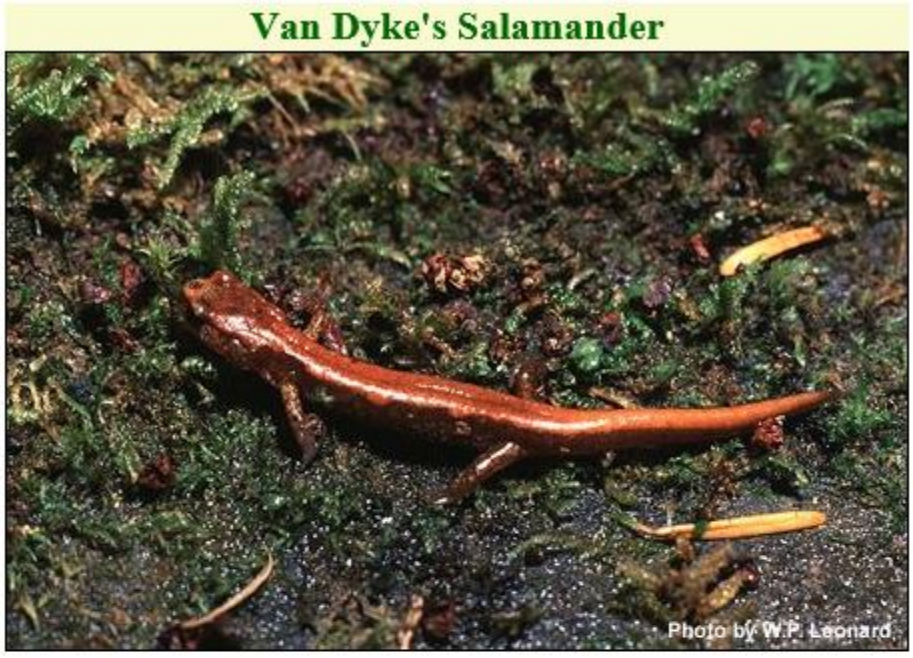
Blessing et al. (1999), Brodie (1970), Herrington (1988), Jones (1999), Nussbaum et al. (1983), Leonard et al. (1993), Wilson et al. 1995.

Personal communications: M. Hayes, L.L.C. Jones

Hallock, L.A. and McAllister, K.R. 2005. Van Dyke's Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: October 2011

Photos



Dark-phase Adult (Pacific County)

Yellow -phase Adult (Pacific County)

Rose-phase Female Guarding Eggs

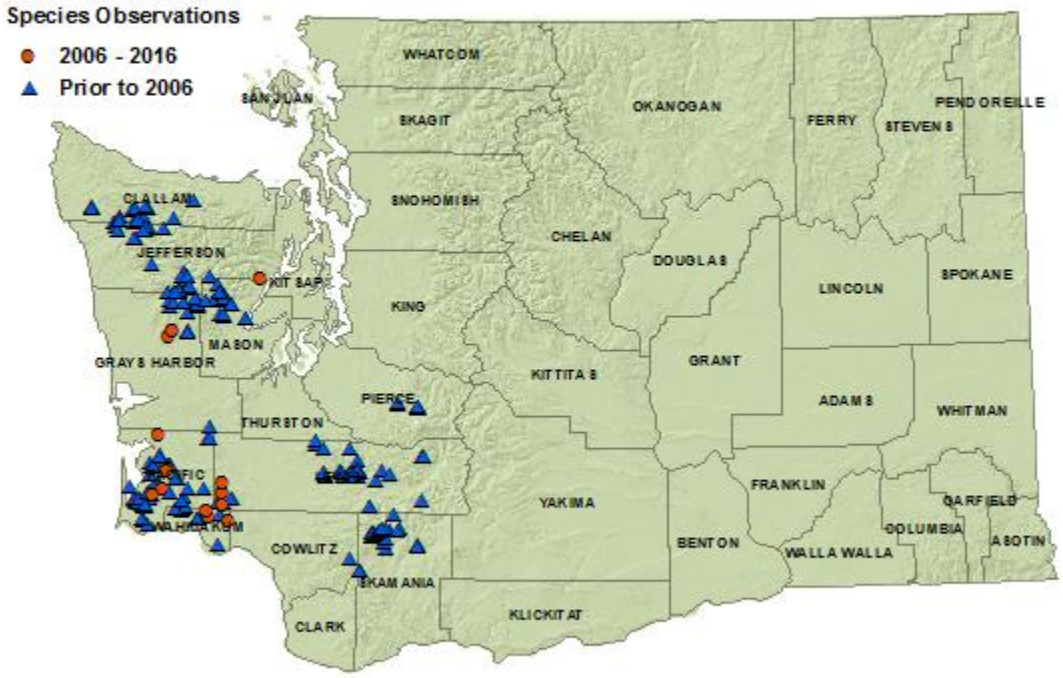
Habitat photo not available at this time

Key Features

Dark-phase Adult (Pacific County)

Distribution Map

Van Dyke's Salamander - Known Distribution



Western Red-backed Salamander

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
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Long-toed Salamander
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Northern Red-legged Frog
Northwestern Salamander
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Reptiles List
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Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Western Red-backed Salamander

Taxon, Status, and Rank

Species	*Plethodon vehiculum* (Cooper, 1860)
Family	Plethodontidae (Lungless Salamanders)
Status	None
State Rank	S5
Global Rank	G5

General Description

A small, thin, salamander with a dorsal stripe. Adults range from 4.0-5.9 cm (1.6 –2.3 in.) snout-vent length, 7-11.5 cm (2.75 – 4.5 in.) total length. The dorsal stripe is well-defined, has even edges and typically extends to the tip of the tail. The color of the dorsal stripe can be red, yellow, olive or tan. The sides and venter are dark brown to black with "salt and pepper" speckling. Patches of the dorsal stripe color are not present on the sides. The tops of the limbs closest to the body are often the same color as the stripe. There are usually 16 costal grooves (range of 14-18) and 2.5 – 5.5 (usually 3.5-4.5) costal folds between toes of adpressed limbs. The snout narrows toward the tip. The tail is round in cross section. Males have enlarged front teeth and vent flaps. Juveniles are similar to adults in general appearance but tend to have more vivid coloration.

Melanistic Western Red-backed Salamanders make up approximately 10% of coastal forest populations. Melanistic individuals may completely lack the dorsal stripe, or the stripe may be partially present or irregular. Other atypical color morphs include weakly melanized individuals that are the color of the dorsal stripe over the entire body and "piebald" individuals with a light body color, dark blotches and no definite stripe.

Typical of Woodland Salamanders (Genus Plethodon), a female attends the eggs until development is complete. Nests are rarely found suggesting the females lay eggs inside decayed logs, in spaces between rocks, or in other underground retreats. There is no free-living larval period; eggs hatch into fully formed miniature versions of the adults.

See Photos Page.

Identification Tips

Nasolabial grooves (a fine groove that extends from the nostrils to the edge of the upper lip) are unique to Lungless Salamanders (Plethodontids). The following traits distinguish Western Red-backed Salamanders from other Lungless Salamanders in Washington. Ensatinas have a distinct constriction at the base of the tail. Larch Mountain Salamanders have a scallop-edged dorsal stripe, reddish or salmon-pink colored belly, and outer hind toes with only one toe segment (phalange) instead of two. Van Dyke's Salamanders are stockier, have an uneven-edged (as if the edges are "dripping" onto the sides in some spots) dorsal stripe (when present), webbed toes, and parotoid glands. Dunn's Salamanders have an uneven-edged dorsal stripe, patches of stripe color on the sides of the body, and a dorsal stripe that does not extend to the tip of the tail. Long-toed Salamanders are similar in general appearance but are Mole Salamanders (Ambystomatids). They differ in having stouter bodies, rounded snouts, laterally compressed tails and no nasolabial grooves.

Melanistic and weakly melanized Western Red-backed Salamanders are relatively common especially in coastal populations. Extra care is needed to distinguish these individuals from Dunn's Salamander and Van Dyke's Salamander. See Key Features Page.

Phenology

They are surface active at night when the ground is saturated with water and temperatures are above freezing, primarily in the fall, winter and spring. During the dry summer months, they may also be surface active in habitats that maintain moisture such as seeps and the edges of streams. Breeding times are geographically variable. Courtship behavior has been observed in Jefferson County in late September and early November. Females oviposit during the spring and summer. Juveniles appear in the fall.

Range

They occur in all ecoregions west of the Cascade Crest. They are known from several islands in the southern and central Puget Sound including Bainbridge Island, Hartstene Island and Hope Island and have also been found on Long Island in Willapa Bay. They have not been found in the San Juan Islands. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Western Red-backed Salamanders are a terrestrial species inhabiting forested stands of all ages. They are commonly associated with rocky areas and the edges of streams and seeps, but are not limited to these habitats. They shelter under rocks, forest litter, sword ferns and downed woody debris. During the dry summer months they can be found under surface objects that retain moisture and in moist habitats associated with the edges of streams and seeps. Based on mark-recapture fieldwork, they show a high degree of site-specificity and maintain relatively small home ranges (less than 3 square meters).

State Status Comments

Western Red-backed Salamanders are common and apparently well-distributed throughout their historical range in Washington. They are the most commonly encountered Lungless Salamanders in Washington.

Inventory and Research Needs

There are no inventory or research needs at this time. Observations from areas not indicated on the map can be submitted to Lori Salzer at Washington Department of Fish and Wildlife at salzeljs@dfw.wa.gov.

Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Threats and Management Concerns

None at this time.

References

Brodie 1970, Corn and Bury 1991, Nussbaum et al. 1983, Ovaska 1988, Petranka 1998, Stebbins 1985

Personal communications: L.L.C. Jones

Hallock, L.A. and McAllister, K.R. 2005. Western Red-backed Salamander. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

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Photos

Adult

Habitat (Thurston County)

Key Features

Adult

Underside of adult (Thurston County)

Typical coloration (Thurston County)

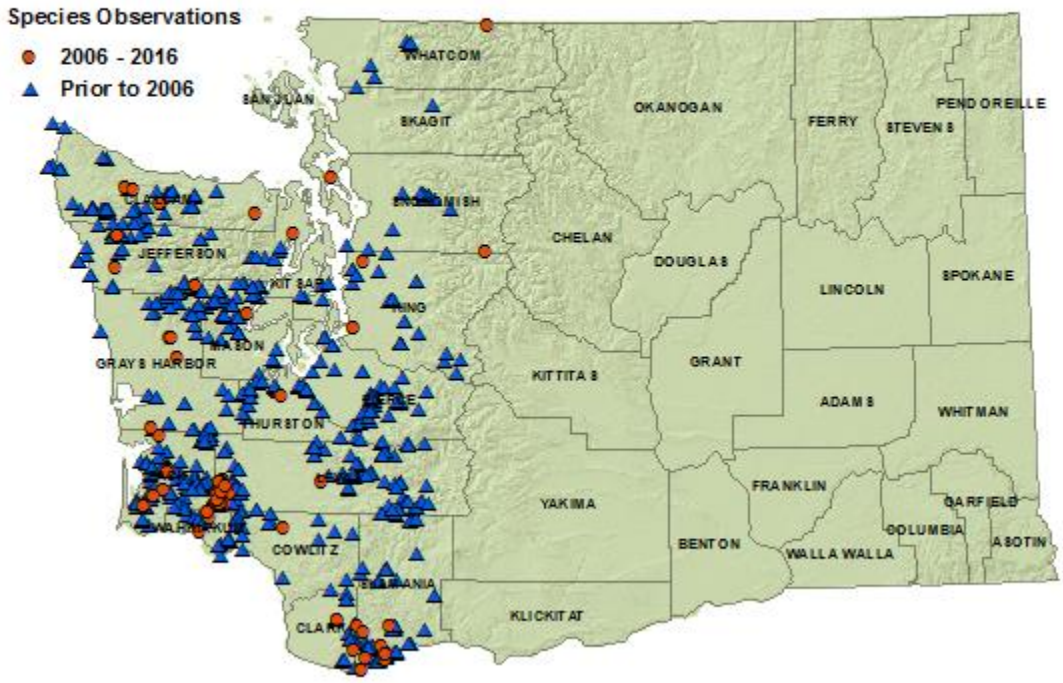
Atypical color morph (Pacific County)

Adult with unusual coloration (Pacific County)

Melonistic adult (Pacific County)

Distribution Map

Western Red-backed Salamander - Known Distribution



Great Basin Spadefoot

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
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Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

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Northwestern Salamander
Olympic Torrent

Great Basin Spadefoot

Contents:

Links:

Photos
Key Features
Distribution Map

Taxon, Status, and Rank

Species	*Spea intermontana* (Cope, 1883) (= Scaphiopus intermontanus)
Family	Pelobatidae (Spadefoot Toads)
Status	None
State Rank	S5
Global Rank	G5

General Description

This is a small to medium-sized light-colored toad with a plump body, broad waist, short legs, relatively smooth skin and a short, upturned snout (pug-nosed). Adults range in size from 3.8 to 6.3 cm (1.5- 2.5 in) snout-vent length. This family is named for the sharp-edged black horny "spade" present on the inside of the hind feet. The pupil is vertical. A slight swelling, called a boss, is located between the eyes. The dorsal body color is tan, light brown, gray, or olive with indistinct light streaks down the back and sides. The skin is covered with slightly raised brown and/or reddish bumps. Ventral surfaces are light-colored except that in males the throat is dusky colored and nuptial pads are present on the inner most front toes. Newly metamorphosed spadefoots look similar to adults.

The tadpole has a slightly flattened body shape with closely set dorsal eyes, prominent nostrils and a tail fin that starts at the tail-body junction. The overall coloration is dark with lighter dorsolateral bands. The dorsal fin extends just past the end of the tail tip and the end of the tail tapers slightly. The belly has three distinct longitudinal sections and a golden iridescence. The tail musculature is light in color and the tail fins are finely reticulated with light brown. When looking down on the tadpole, the triangular head is distinct from the body, although the outer silhouette is continuous. Tadpoles grow to between 30-70 mm total length before metamorphosis. Newly metamorphosed spadefoots range in size from approximately 10-20 mm snout-vent length.

The eggs are laid in small loose packets of 10-40. The egg packets are approximately 15-20 mm long axis length. The shape of the egg packet is irregular with each egg distinguishable from the others, somewhat like a cluster of grapes. Individual eggs are small with the ovum and gel together measuring less than 5 mm in diameter and each egg can be easily separated from the mass. Egg masses are attached to vegetation or laid unattached directly on the sediments in shallow water.

Voice: The advertisement call is a monotonous, grating, snore-like "wa-wa-wa" audible at great distances. Others describe the call as a low-pitched quacking. The release call is a grating extended single note "waaaaaaaa" accompanied by an arching of the body.

See Photos Page.

Identification Tips

The Great Basin Spadefoot is easily distinguished from all other Washington anurans by the presence of jet black spades on the inside margins of the hind feet. The vertical pupil distinguishes them from all other Washington anurans except the tailed frogs. At night, however, the pupil is round and slow to contract when exposed to bright light. The tadpole is easily distinguished from other tadpoles in Washington by the close-set dorsal eyes, prominent nostrils and the distinct separation between the triangular head and the rest of the body (dorsal view). The egg packets of the Pacific Treefrog are more rounded and symmetric in general appearance (not like a bunch of grapes) and individual eggs cannot be easily separated from the cluster. The Long-toed Salamanders have individual eggs (ovum and gelatinous envelop together when fully expanded) measuring 10 mm or greater in diameter. See Key Features Page.

Phenology

Great Basin Spadefoots start breeding in late March in the Columbia Basin. They are typically "explosive breeders" with all breeding completed in a period of a few days. However, at some sites, males call for weeks or even months. Breeding duration at each site varies with conditions such as water temperature and hydroperiod. Eggs hatch typically in 2-3 days, but development can take longer if water temperatures are cooler. Tadpole development typically takes 1-2 months, but can accelerate with high temperatures if pool drying threatens to strand developing larvae. Spadefoots remain active until late October-early November. Overwintering behavior is unstudied in Washington, but is likely subterranean.

Range

The Great Basin Spadefoot is primarily a species of the Columbia Plateau Ecoregion but the range also extends into the Okanogan Ecoregion. A single report exists of a tadpole found in the Canadian Rockies Ecoregion from Stevens County across the Columbia River from the town of Hudson. Most of the observations in the Okanogan Ecoregion are from the Columbia, Methow, and Okanogan river valleys. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Great Basin Spadefoots occur primarily in shrub-steppe. A variety of aquatic habitats are used for breeding including slow flowing springs, seasonal pools, irrigation ditches and ponds. Transformed spadefoots are nocturnal and completely terrestrial, only returning to water for breeding. Spadefoots are adapted to survive in arid climates by spending long periods of time buried under ground. They are able to quickly bury themselves in loose soils by using their hind legs in a circular motion to back into the soil. They can remain buried for months at a time and can tolerate high levels of water loss. Activity is reported to be primarily associated with rains and periods of high humidity, however, in many areas of the Columbia Basin, it is common to find individuals on roads at night without precipitation.

State Status Comments

The Great Basin Spadefoot lacks special state or federal status. They occur throughout the Columbia Basin and are locally common in many areas. No declines have been documented in Washington. Great Basin Spadefoots apparently can tolerate some habitat alteration, often persisting in irrigated agricultural lands. It is possible that they have actually increased in abundance due to the prevalence of breeding sites provided in some areas by irrigation water, but no systematic surveys have been conducted to document such patterns.

Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Inventory and Research Needs

As the distribution map indicates, many areas of the Columbia Basin exist where no Great Basin Spadefoots have been recorded in the Washington Department of Fish and Wildlife herp database. The last records from Spokane, Garfield and Asotin counties were in 1937, 1958 and 1947 respectively. Observation of Great Basin Spadefoots found in these counties, or areas without observation records in the last 20 years, should be submitted to the WDFW reptile and amphibian database by contacting Lori Salzer at salzeljs@dfw.wa.gov.

Threats and Management Concerns

No obvious threats exist at this time, but lack of systematic documentation at sites where they were historical present makes interpretation difficult. Considerable conversion of shrub-steppe, that contained seasonal aquatic habitats historically, provides some justification for refining the basis of existing information.

References

Brown (1989), Corkran and Thoms (1996), Hall (1993, 1998), Hallock (1998a, b, c, 1999), Nussbaum et al. (1983), Stebbins (2003), Habitat Atlas for Species at Risk (http://wlapwww.gov.bc.ca/sir/fwh/wld/atlas/)

Hallock, L.A. and McAllister, K.R. 2005. Great Basin Spadefoot. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

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Photos

Great Basin Spadefoot

Adult (Grant County)

Eggs (Douglas County)

Tadpole (Benton County)

Habitat (Douglas County)

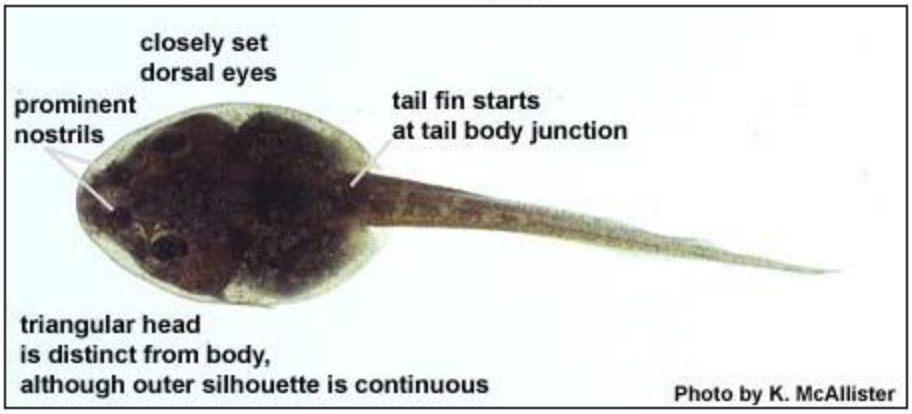
Habitat (Grant County)

Key Features (next page)

Adult (Grant County)

Vertical pupil (Grant County)

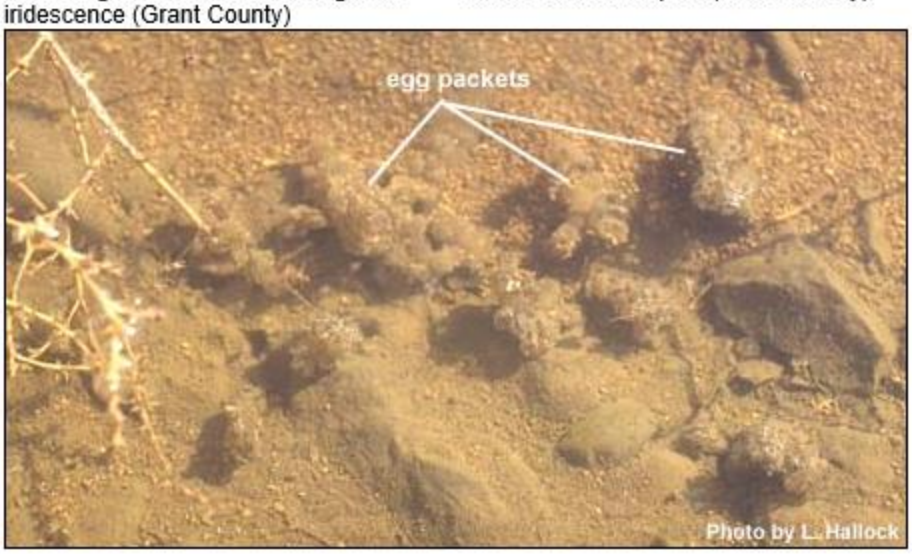
"Spade" on underside of foot (Klickitat County)



Tadpole

Ventral view of tadpole showing the three longitudinal sections and golden iridescence (Grant County)

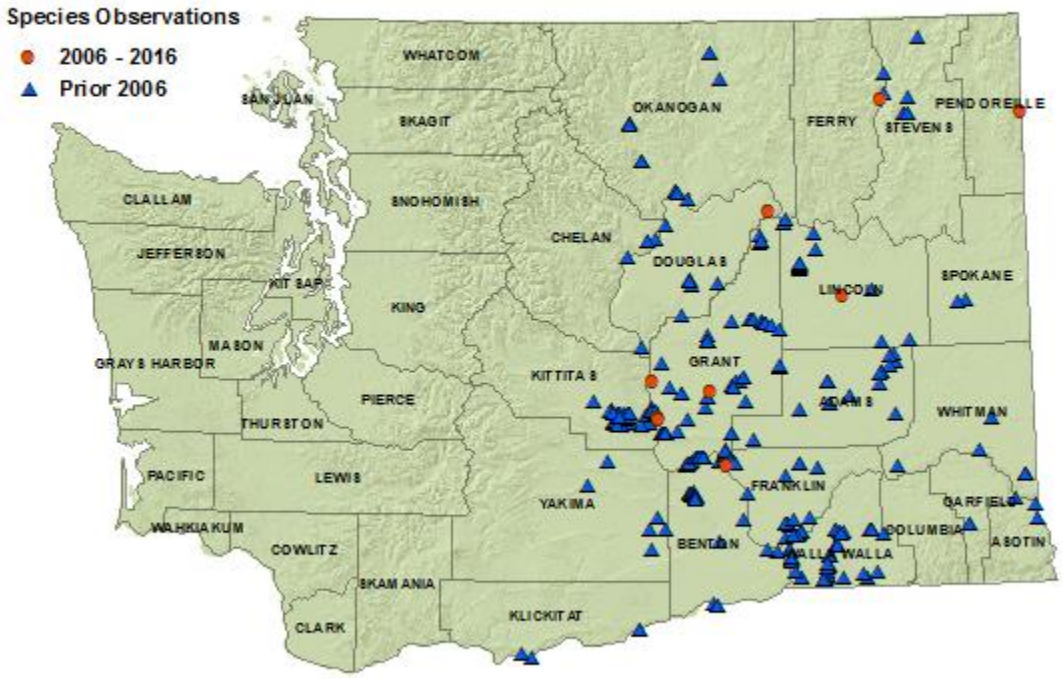
Dorsal view of tadpole (Grant County)



Eggs (Douglas County)

Distribution Map

Great Basin Spadefoot - Known Distribution



Western Toad

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
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Larch Mt. Salamander
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Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
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Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander

Western Toad

Taxon, Status, and Rank

Species	*Bufo boreas*	Baird and Girard, 1852
Family	Bufonidae (True Toads)	
Status	State Candidate	
State Rank	S3S4	
Global Rank	G4	

General Description

This is a medium-sized to large toad with a blunt head, stout body, broad waist, short legs, and "warty" skin. Adults range in size from 5.1 to 12.7 cm (2-5 in.) snout-vent length. Females attain larger sizes than males. Prominent oval glands, called parotoid glands, are present on the head posterior to the eyes. The dorsal body color is usually brown or green, but can also be gray, reddish-brown, or olive. The warts are usually surrounded by dark blotches and may be reddish in color. A distinct, thin, light middorsal stripe is present on all except some of the smallest juveniles. The ventral surface is light with irregularly distributed dark markings. The pupil is horizontally oval. Two yellow rounded knobs, called tubercles, exist on the underside of the hind feet. During the breeding season, males develop a smoother skin than females. Newly metamorphosed toads emerge from the water with remnants of the tail and dark skin. Within days they develop the appearance of miniature adults except the parotoid glands are not as obvious and the dorsal stripe may be subtle or absent.

The tadpole is uniformly dark and appears black in water. Varying degrees of fine lighter flecking are present on the body. The body is dorsally flattened with a low tail fin that originates at the dorsal tail-body junction. The eyes are dorsally situated relatively high on the head. The spiracle is on the left side of the body and the vent is medial at the tail-body juncture. The tail musculature is dark and the fins are slightly pigmented with the dorsal fin darker than the ventral. The tail tip is rounded. The underside of the body is slightly paler than the dorsal surface. The fine lighter flecking on larger tadpoles gives them a fine golden shimmer over the belly when viewed in bright light. Tadpoles grow to approximately 5.0 cm total length (2 in.). The tadpoles form dense aggregations or "schools" composed of thousands of individuals that consist of kin groups (sibs from the same clutch).

The eggs are laid in long strings on bare sediments or intertwined in vegetation in shallow water near shore. Individual females produce approximately 12,000 eggs per clutch on average (estimated counts range 6,000 – 20,000). Toads have been observed to wrap their eggs around vegetation in deeper water (> 1 m) away from shore, but this is not typical.

Voice: A mellow chirruping or soft, high pitched plinking sound like the peeping of a chick. These vocalizations are produced with notes in rapid succession. Multiple males vocalizing at the same time sound rather like a distant flock of Cackling Canada Geese. Vocalizations are produced day and night. One must be relatively close (less than 30 m) to hear them. Both males and spent females give a "release call" when grabbed by an indiscriminant male or when handled by humans. This call is a rapid chirping accompanied by a pulsing of the body.

See Photos Page.

Identification Tips

Presence of parotoid glands distinguishes True Toads (Bufonidae) from all other frogs. Woodhouse's Toads (*Bufo woodhousii*) have elongate parotoid glands that are distinctly longer than the eye and have "L"-shaped cranial crests located between and posterior to the eyes. These traits are not present in newly metamorphosed toads and may not be prominent in juvenile toads. The tadpoles of both toad species are similar, but Woodhouse's Toad tadpoles have patches of white and gold pigment on the body and the underside of the tail musculature and the tail fin lacks pigment except for some dark flecking. The egg strings are also similar but those of Woodhouse's Toads have only one gel layer. The call of Woodhouse's Toads is a loud, explosive "w-a-a-a-a-ah" lasting about 1-1 1/2 seconds. See Key Features Page.

Phenology

In general, breeding starts in mid-April at low elevation sites in western Washington and in late April or early May at low elevation sites in eastern Washington. Toads at higher elevations tend to breed later. Onset of egg laying at each location varies from one to three weeks each year depending on site conditions such as snow melt.

Development of the embryos to hatching takes less than two weeks. Tadpole development to metamorphosis takes approximately two months depending on temperature and food availability. Newly metamorphosed toads (toadlets) vary from approximately 9-10 mm to 18 mm snout-vent length. The toadlets disperse from the breeding sites en masse for one to two weeks. These dispersals are remarkable, with tens of thousands of tiny toads covering the ground and gathering in huge piles while basking in the sun.

Range

Western Toads occur in all Washington ecoregions. Within the Washington portion of the Columbia Plateau, their distribution is limited to the edges of the ecoregion except in the southeast corner of the state. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List

Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
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Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Oregon Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Habitat and Habits

Western Toads occur in a variety of terrestrial habitats including prairies, forests, canyon grasslands and ponderosa pine-Oregon Oak habitat. They appear absent from most of the shrub steppe and steppe zones with the exception of the canyon grasslands in southeast Washington.

Transformed toads are primarily terrestrial, but often occur near water bodies, especially in drier climates. Overwintering habitat has not been described for Washington. In Thurston County, individual toads have been found in mid-February within duff under sword ferns suggesting that some individuals overwinter terrestrially in areas with mild winters or at least occur terrestrially during the mild portions of winters.

Breeding waters are usually permanent and include wetlands, ponds, lakes, reservoir coves and the stillwater off-channel habitats of rivers. Anecdotal reports indicate that many populations return to the same egg laying location every year. Males gather at breeding sites days to weeks before egg laying commences. Males swim rapidly towards other toads moving in the water. Males being approached by another male release a rapid succession of vocalizations; these are the most common vocalizations heard at breeding sites during the day. Males spend a great deal of time on logs and floating vegetation around the breeding site. Females are much more cryptic and secretive and are uncommon at breeding sites until breeding is about to commence. Western Toads are explosive breeders; most toads at each breeding site lay all eggs within a week.

State Status Comments

General concern about this species is due to rapid and unexplained declines in California, Colorado, New Mexico, Oregon, Utah, Washington and Wyoming. In Washington, Western Toad declines have been documented in the Puget Trough and lower Columbia River. Of 86 historical sites in the Puget Trough Ecoregion, only 21 have been confirmed extant since 1980. Of those populations known extant since 1980, the populations at Beaver Lake (King County), Nisqually Lake (Pierce Co.), and Nisqually National Wildlife Refuge (Thurston Co.) are now extirpated. Of 21 historical sites along the lower Columbia River below Bonneville Dam, none have been confirmed extant, and only one extant site is currently known to exist along this reach.

The relatively low Washington Natural Heritage S-rank of S3S4 is due to the species' large range in Washington and the fact that the species remains locally common in many areas. However, local declines have been documented and give cause for concern. If populations continue to decline or disappear, the rank will be re-evaluated. Additional, taxonomic research may revise species boundaries (see Inventory and Research Needs below).

Inventory and Research Needs

Breeding site information, locations and use, is needed throughout the state. The following counties are of special concern because of the lack of recent Western Toad reports. The date in parentheses is the most recent report documented in the Washington Department of Fish and Wildlife reptile and amphibian database: Asotin (1958), Clark (1940), Island (1938), San Juan (1939, for all islands except Cypress Island where more recent reports exist), Wahkiakum (1969) and Walla Walla (1974). Observation reports can be submitted to Lori Salzer at salzeljs@dfw.wa.gov.

Several investigators have long been aware that what is now termed Bufo boreas is badly in need of taxonomic revision. Whether all Washington populations belong to one taxon awaits this taxonomic evaluation.

Threats and Management Concerns

This species is especially vulnerable to road traffic during adult movements to and from breeding sites in the spring, and dispersal of newly metamorphosed toads away from breeding sites in the summer and fall. Anecdotal observations suggest that many populations return to the same egg laying location every year. Alteration of these sites may lead to population declines or population extirpation. Because population declines have been rapid, Western Toad breeding sites should be monitored every five to ten years to confirm presence.

Breeding sites, especially in western Washington, appear to be vulnerable to successional changes in vegetation, i.e., a tendency for more open wetlands to succeed into shrub-scrub wetlands that provide unsuitable breeding habitat. The basis of these changes is unclear; hydrological alteration and modification of the grazer assemblage are suspected. This is a critical study need.

Results of a recent Western Toad telemetry study in southeastern Idaho suggest that establishing a buffer large enough around breeding ponds to protect the integrity of the breeding pond and promote connectivity between wetlands and terrestrial habitats, as well as leaving sufficient amounts of cover to provide moist microsites, may be important timber harvest practices needed for conserving toads.

References

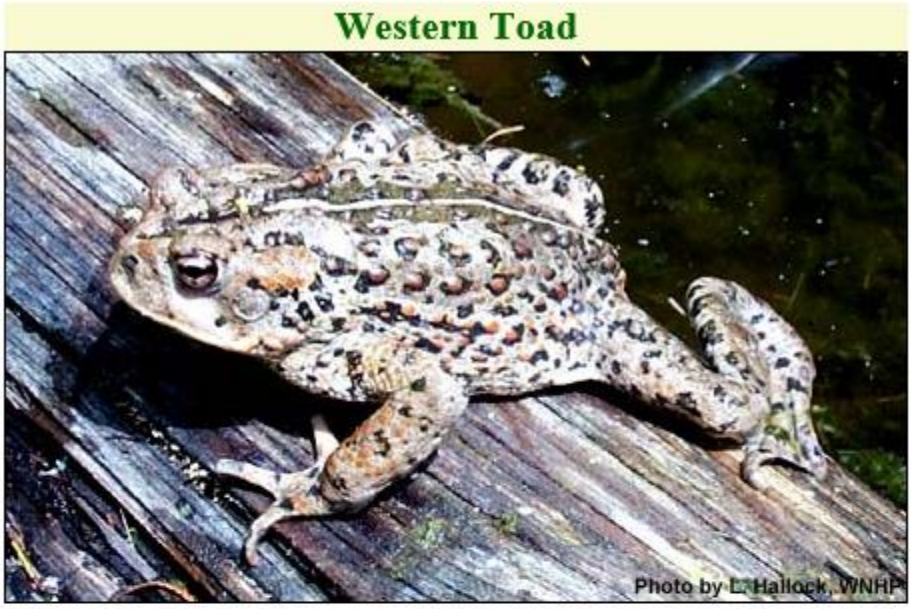
Bartelt et al. (2004), Davidson (1995), Hallock and Leonard (1997), Maxell et al. (2002), Nussbaum et al. (1983), Samollow, P.B. (1980), Stebbins (2003), Stebbins and Cohen (1995).

Personal communications: C. Crisafulli, T. Chestnut, M. Hayes, W. P. Leonard, R. Milner.

Hallock, L.A. and McAllister, K.R. 2005. Western Toad. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos



Adult female (Pend Orielle County)

Egg strings (Pend Orielle County)

Tadpole school (Lincoln County)

Breeding habitat (Pend Orielle County)

Breeding habitat (Ferry County)

Breeding habitat (Skamania County)

Key Features (next page)

Adult (Ferry County)

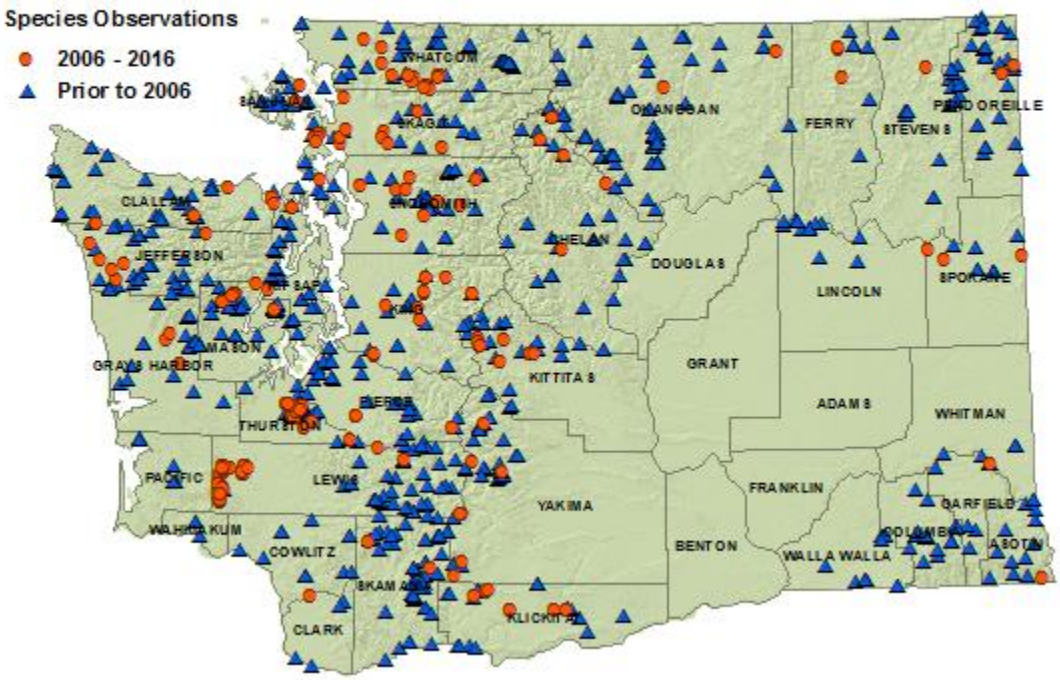
Tadpole

Tadpoles (Pend Orielle County)

Egg strings (Pend Orielle County)

Distribution Map

Western Toad - Known Distribution



Woodhouse's Toad

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Woodhouse's Toad

Taxon, Status, and Rank

Species	*Bufo woodhousii* Girard
Family	Bufonidae) (True Toads)
Status	State Monitor
State Rank	S3
Global Rank	G5

General Description

This is a medium to large (45-125 mm snout-vent length) terrestrial toad with a stout body, broad waist, short legs, a round head and short snout. The skin is warty and the parotoid glands are elongate. Prominent L-shaped cranial crests are present between and behind the eyes. The ground color is gray, light brown or olive with dark blotches and spots. The underside is light colored with small dark blotches. The dorsal stripe is white. Males have a dark throat. The tadpole is small (less than 25 mm total length), has a depressed body with dorsal eyes, a spiracle on the left side of the body, a medial vent and a low fin that originates at the dorsal tail-body junction. The tip of the dorsal fin is rounded. The body and dorsal side of the tail musculature are darkly pigmented. Light and golden pigment appears first near the underside of the tail base and increases on the body as the tadpole grows. The tail fin and underside of the tail musculature lack pigment but may have some dark flecking. Eggs are laid in strings often mixed with eggs from other toads. Individual eggs are small, black above and white below. The advertisement call is a loud, nasal "w-a-a-a-ah" lasting about 1-1 1/2 seconds. See Photos Page.

Identification Tips

The presence of parotoid glands distinguishes True Toads from all other anurans and the L-shaped cranial crests and elongate parotoid glands distinguish the Woodhouse's Toad from the Western Toad. These traits are not present in newly metamorphosed toads and may not be prominent in juvenile toads. Unlike Woodhouse's Toad tadpoles, Western Toad tadpoles appear uniformly black (fine gold pigmentation on the belly is visible in bright light), the dorsal fin is moderately pigmented, and the ventral fin has little or no pigmentation. The difference between the eggs of Washington's two toad species is subtle: Woodhouse's Toads have only one layer of gel, Western Toads have two. See Key Features Page.

Phenology

Activity starts in late April to early May and continues into October. Adult activity is crepuscular and nocturnal; smaller toads can occasionally be found during the day. Chorusing in Franklin, Benton and Grant counties occurs from May to July depending on conditions at each breeding site. Egg development to hatching is rapid. Tadpole development is completed in approximately two months and metamorphosis occurs in the summer or fall of the first year. Over-wintering behavior has not been studied in Washington.

Range

Woodhouse's Toads occur in the Columbia Plateau Ecoregion associated with the Columbia and Snake rivers. Occurrences on the Columbia River have been documented between the Priest Rapids Dam and John Day Dam. Occurrences have also been documented in the Eltopia and Wahluke Branch irrigation canal systems in Franklin County. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Occurrences are found in shrub-steppe habitat near the Columbia and Snake rivers. Breeding takes place in a variety of still-water habitats, including shallow temporarily flooded sites, ponds and sloughs. Transformed toads are terrestrial. Habitats include riparian areas, shrub-steppe and grassland.

State Status Comments

Distribution is limited in Washington and occurrences are in areas that have been widely converted to agriculture and urban development. Occurrence reports in the last decade have been limited to the Hanford Site (Grant and Franklin cos.), Juniper Dunes area (Franklin Co.), McNary National Wildlife Refuge (Walla Walla Co.), Alder Creek and Crow Butte State Park (Klickitat Co.).

Inventory and Research Needs

Information is needed on the current distribution (especially along the Snake River and any sightings that occur outside the known distribution), as well as on life history attributes and habitat requirements.

Threats and Management Concerns

This species is especially vulnerable to road traffic during movements to breeding sites in the spring and dispersal of young out of breeding sites in late summer and fall. Little else is known about threats to this species.

References

Corkran and Thoms (1996), McDiarmid and Altig (1999), Nussbaum et al. (1983), Stebbins (1985).

Photos (next page)

Woodhouse's Toad

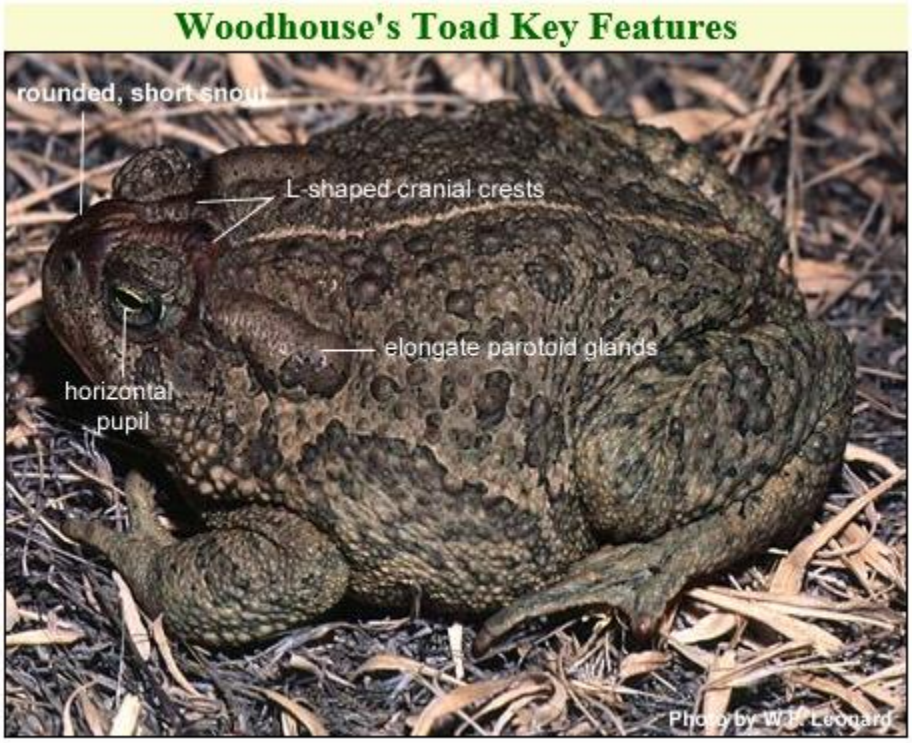
Adult (Benton County)

Woodhouse's Toad eggs (Benton County)

Woodhouse's Toad breeding sites (Grant County)

(Benton County)

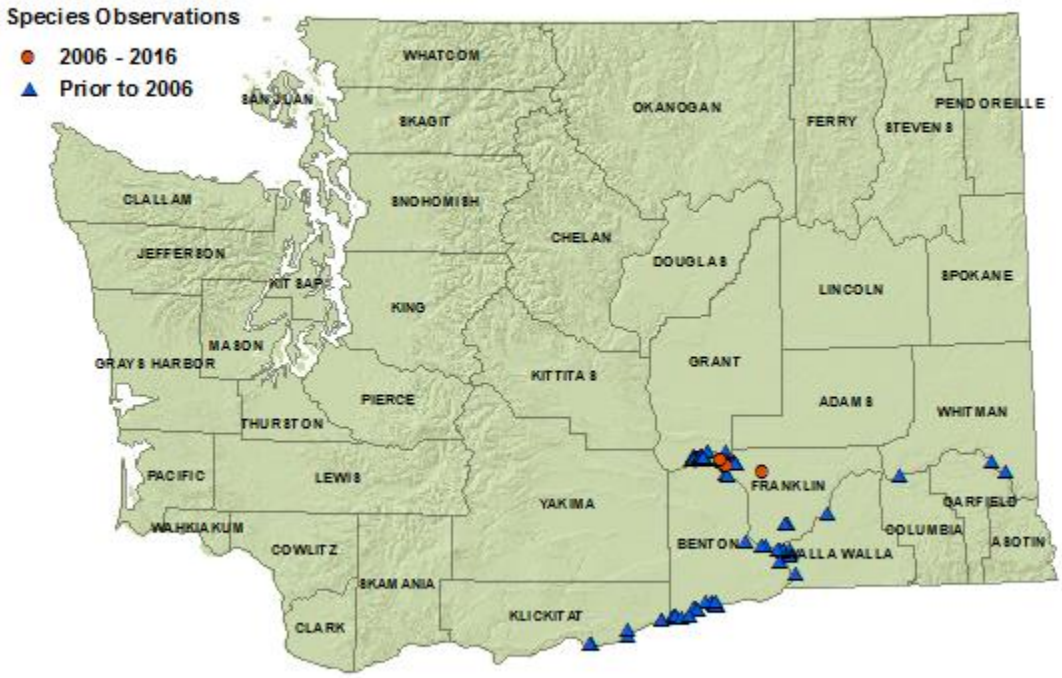
Key Features



Adult Woodhouse's Toad (Benton County)

Distribution Map

Woodhouse's Toad - Known Distribution



Pacific Treefrog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Pacific Treefrog

Taxon, Status, and Rank

Species	*Pseudacris (= Hyla) regilla* (Baird and Girard, 1852)
Family	Hylidae (Tree Frogs)
Status	None
State Rank	S5
Global Rank	G5

General Description

This small frog has a somewhat flattened body, narrow waist, long legs, relatively smooth skin and a pointed snout. Adults are usually less than 5.0 cm (2 in.) snout-vent length. Females attain larger sizes than males. Tips of the fingers and toes have sticky broadened circular discs called "toe-pads" that adhere well to smooth surfaces. The dorsal body color is typically green or brown, but can also be shades of gray, red, copper, or some combination of all these colors. A conspicuous dark mask extends from the tip of the nose through the nostril, eye, and tympanum to the shoulder. Frequently, two or three stripes run down the back and a "Y" shaped marking exists on the head between the eyes. These markings may be discontinuous, appearing more like spots or blotches or may be subtle or absent. Other dark blotches or markings may be present on the sides of the body and limbs. The ventral surfaces are mostly white, often with yellow to yellow-orange coloration on the legs and sides of the belly; mature males also have darkly pigmented throats with a translucent yellow wash and wrinkly skin. Newly metamorphosed Pacific Treefrogs look similar to adults.

The tadpole has eyes on the margins of the head and a tail fin with a high arch that starts mid-way along the back and is rounded at the tip. The overall coloration is brown or olive usually with black speckling (but not inky black spots). The underside is white with metallic iridescence. Tadpoles grow to about 50 mm total length before metamorphosis. Newly metamorphosed Pacific Treefrogs range in size from approximately 12 to 18 mm snout-vent length.

The eggs are laid in small loose packets of around 9 to 70 eggs. The egg packets are approximately 20-40 mm in diameter. Individual eggs, when fully expanded, are small with the ovum and gel together measuring less than 7 mm in diameter. Egg packets are typically attached to a brace, often vegetation; less frequently, they are laid directly on the sediments.

Voice: Males produce a variety of calls in the breeding chorus including a two-part advertisement call, "rib-it" or "crek-ek," an enhanced male attraction call, and a trilled encounter call. The choruses are audible from great distances. Outside the breeding season, males produce a one-part dry land call. These calls are produced throughout the year except during the driest and coldest periods. Pacific Treefrogs are the most commonly heard frogs in Washington.

See Photos Page.

Identification Tips

The Pacific Treefrog is easily distinguished from all other Washington frogs by the circular discs at the tips of the fingers and toes. Pacific Treefrog tadpoles are the only tadpoles in Washington that, when viewed from above, have eyes located on the margins of the head. The eyes, especially in large tadpoles, stick out from the outline of the head.

Eggs of the Great Basin Spadefoot are arranged somewhat like a bunch of grapes with each egg being loosely attached to the next instead of being contained within a single small cohesive packet like that of the Pacific Treefrog. Eggs of Long-toed Salamanders, when fully expanded, are larger and somewhat darker on the pigmented (upper) side with individual eggs, including ovum and gel, measuring 10 mm or greater in diameter. See Key Features Page.

Phenology

Warm winter rains appear to trigger migrations to the breeding ponds. Males arrive first. Chorusing takes place at night during the early part of the season and may continue during the day at the peak of the breeding season. Calling will cease if nighttime temperatures fall below 5ºC (41ºF). Calling may take place for several weeks before egg laying actually starts. Most egg laying starts in mid-February at lower elevations in western Washington and in April at lower elevations in eastern Washington. Breeding is later at higher elevations. Breeding at most sites is prolonged, up to 3-4 months. Eggs hatch in 3-5 weeks. Larval development typically takes 1 1/2 to 2 1/2 months to complete. The juveniles grow quickly and some are able to reproduce the spring following metamorphosis. Overwintering behavior has not been studied in Washington. At low elevations on the west side of the Cascades, males call sporadically during the winter when temperatures are above 8-10ºC (46-50ºF), implying that they remain active throughout the winter.

Range

The Pacific Treefrog is the most widespread and common frog species in Washington and occurs in all ecoregions. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Pacific Treefrogs are able to utilize a wide variety of habitats and persist even within urban and disturbed areas, where pockets of undeveloped habitat exist. In the Columbia Basin, their distribution is limited to areas with water. This species was not detected during an extensive herpetological inventory conducted at the Hanford Site in1996 and 1998. This is the driest area of the state and may exceed the species' tolerance limits. Pacific Treefrogs are able to use almost any type of still or slow-flowing water for breeding including wetlands, ponds, lakes, still water edges of rivers, slow flowing springs, irrigation ditches, road ditches, seasonally flooded pools and puddles, deep tire ruts, children's wading pools and spring boxes. Survival in seasonal water bodies can be precarious; water may dry up before tadpoles can complete metamorphosis. This species is prolific and the tadpoles are usually the most common amphibian larvae at any breeding site.

Transformed treefrogs are terrestrial but need to be in moist microhabitats or near water. Terrestrial habitats include wet and dry forests, prairies, alpine areas, and both shrubland and grassland communities. Contrary to strict interpretation of their common name, they tend to be found on the ground or in shrubs. Much activity is nocturnal, especially at low elevations, but it is not unusual to find them out during the day.

Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

State Status Comments

The Pacific Treefrog is the most common frog species in Washington and can persist in a variety of habitats including developed and disturbed areas. While local declines have been reported from selected extensively urbanized areas, no major declining trends have been noted in Washington.

Inventory and Research Needs

None at this time.

Threats and Management Concerns

Larvae may not persist in the presence of introduced warmwater fish. Pollution and chemical contaminants may cause declines or localized extinctions in affected areas.

Populations with malformations, especially in the form of extra limbs, have been found in Washington. Frogs that breed in ponds with high levels of nutrients from fertilizers, cattle or other sources, may be at higher risk for developing malformations. Current research indicates that a trematode parasite in the genus *Ribeiroia* often causes these deformities. A suggested reason for the apparent increase in the number of anurans found with deformities is that eutrophication causes a predator-mediated shift in snail species composition toward the snail *Planorbella* spp., the exclusive first intermediate host of the parasite *Ribeiroia ordatrae*.

References

Corkran and Thoms 1996, Davison 1995, Hallock (1998), Johnson and Chase (2004), Johnson and Lunde (1999), Nussbaum et al. 1983, Stebbins 1951, Stebbins 2003

Personal communications: M. Hayes, P. Johnson, J. Lewis

Hallock, L.A. and McAllister, K.R. 2005. Pacific Treefrog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

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Photos (next page)

Pacific Treefrog

Adult (Thurston County)

Tadpole

Egg mass (Thurston County)

Habitat (Pend Orielle County)

Habitat (Pend Orielle County)

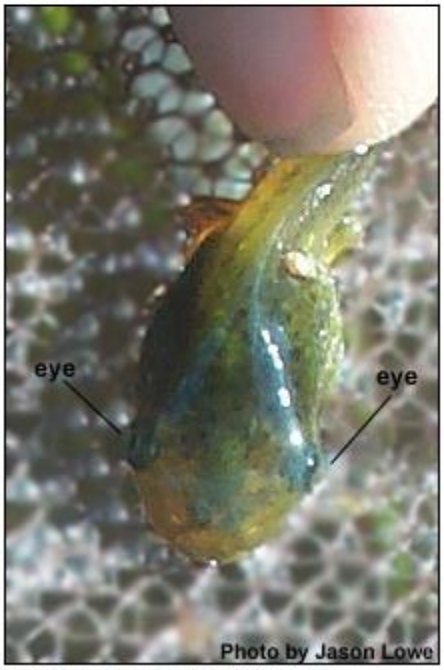
Habitat (Adams County)

Habitat (Douglas County)

Key Features

Adult (Thurston County)

Circular discs (toe-pads) on fingers and toes



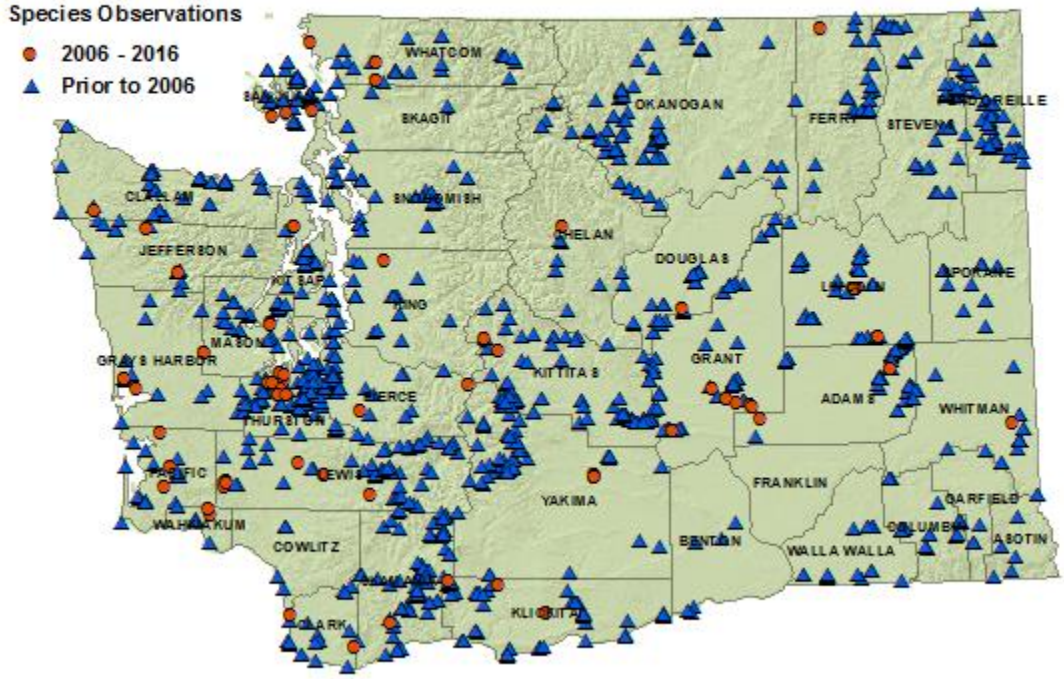
Dorsal view of tadpole showing placement of eyes (Lincoln County)

Dark throat of male (Pend Oreille County)

Light throat of female (Thurston County)

Distribution Map

Pacific Treefrog - Known Distribution



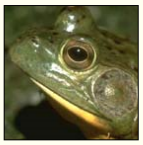
American Bullfrog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

American Bullfrog

Taxon, Status, and Rank

Species	*Rana catesbeiana* Shaw, 1802 = *Lithobates catesbeianus*
Family	Ranidae (True Frogs)
Status	None
State Rank	SE
Global Rank	G5



General Description

This is a large, heavy-bodied frog with a distinct fold of skin (supratympanic fold) that extends from the eye, around the posterior edge of the external ear (tympanum) to the shoulder. Adults attain sizes up to 150 mm snout-vent length. The dorsal color is tan, brown or olive-brown with varying amounts of black mottling and speckling. Adults typically have some green pigmentation in the area between the upper jaw and eyes. Ventrally the body and legs are white to cream colored with dark mottling. Juveniles resemble adults but have distinct inky black specks on the dorsal surface. Neither adults nor juveniles have dorsolateral folds or an eye mask. Mature males have a tympanum much larger than the size of the eye whereas females have a tympanum similar in size to the eye. Mature males also have a yellow-colored throat and gray swollen pads (nuptial pads) on their thumbs.

Larvae- The tadpole has an oval body with dorsal eyes. The dorsal fin terminates on the body and the tail tip is pointed. Tadpoles less than 25 mm total length are black with gold blotches and relatively short tails. Larger tadpoles are olive green with distinct inky black specks over the dorsal surface. The ventral surface is opaque cream to yellow colored with no metallic pigmentation. Tadpoles may attain a length of 110 mm total length or more before metamorphosis.

Eggs – A female lays thousands (> 6000) of eggs in a thin film at the water surface. The eggs typically cover an area greater than 30 cm in diameter. One gelatinous layer (envelope) surrounds the egg (ovum). The eggs often sink to the bottom before hatching.

Voice –The advertisement call is a loud, deep, bass call that is repeated several times in each series. The call has been described as "jug-o'-rum" and "br-rum." The species' common name comes from the fact that the call resembles the roar of a bull heard from a distance. When alarmed, juveniles basking on water edges produce a loud and startling "squeak" as they dive into the water.

See Photos Page.

Identification Tips

Frogs - The American Bullfrog, a widespread exotic frog, has a distinct fold (supratympanic fold) from the posterior edge of the eye, around the top of the tympanum and ending at the shoulder. No other native Washington frog or toad has this trait. The American Green Frog (*Rana [Lithobates] clamitans*) has been introduced to Washington in a few places. The Green Frog has supratympanic folds but is easily distinguished from Bullfrogs by the presence of dorsolateral folds (see key identification photos). This trait is completely absent in Bullfrogs.

The American Bullfrog is North American's largest frog. Full-sized adults are approximately two times larger than any of Washington's native True Frogs (ranids) and about a third larger than the non-native American Green Frog.

Larvae- American Bullfrog tadpoles are easy to distinguish from all other native Washington tadpoles. Small tadpoles (less 25 cm total length) are black with gold blotches and short tails. Larger tadpoles are olive green with distinct inky black specks over the entire dorsal surface. The ventral surface is opaque cream-colored or yellow with no metallic pigmentation. American Green Frog tadpoles are similar in general appearance but have dark spots over the dorsal surface instead of inky black flecks and the belly has a coppery sheen.

Eggs – All native Washington frog species have globular egg masses. Our two toad species produce eggs in strings. The non-native American Green Frog is the only species one might encounter in Washington with an egg mass similar to the American Bullfrog. This species is currently documented from only three Washington locations. The overall size of the egg mass is less than 30 cm in diameter and the mass is only one egg layer thick. Three gelatinous layers (envelopes) surround the egg (ovum).

Both American Bullfrog and American Green Frog males produce vocalizations throughout the summer. This habit can be helpful in determining which species is breeding at a site. The Green Frog produces a low-pitched, single-note advertisement call that sounds like a low-note banjo string being plucked "Clung!" This call may be given as a single note or repeated several times in a row.

See Key Features Page.

Phenology

Bullfrogs are the last anuran to become active and breed in Washington. They are rarely encountered before April and calling does not commence until May or June. Eggs are laid in June and July. In some places, breeding may extend into August. Egg development is rapid. Depending on water temperature and other site factors, time to hatching can be a few days to a week. Tadpoles grow quickly but do not metamorphose until their second or third summer. For transformed frogs, most surface activity ceases in November.

Range

In Washington, American Bullfrogs have been reported from lower elevations in all ecoregions except the Blue Mountains Ecoregion. Most documented sites are in the Puget Trough, Columbia Plateau and Canadian Rocky Mountain ecoregions. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
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Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Habitat and Habits

American Bullfrogs are found in lowland permanent water bodies including wetlands, ponds, lakes, sloughs, creeks and rivers. Although they are primarily a "shore frog" they occasionally move to terrestrial sites at night and they will disperse over land, *en mass*, on warm rainy nights. Juvenile Bullfrogs have also been observed in road puddles at some distance from aquatic habitat. Puddles and other sources of temporary standing water may be important habitat features for dispersing individuals.

Breeding habitats include a variety of permanent still-water bodies. Bullfrogs are able to exist and breed in water bodies with exotic warm-water fish. Some studies show they may even benefit from the presence of these fishes.

Similar to its native range, Bullfrogs likely overwinter in permanent water bodies near sources of well-oxygenated water. The authors are unaware of any observations of Bullfrogs surface active during the mild winter conditions that exist in lowland western Washington.

Bullfrogs are active both day and night depending on temperature. They are alert, fast frogs that remain motionless until approached closely. When approached, basking Bullfrogs always flee into water and then dive into muck or vegetation. When scooped up in a net, captured individuals often remain completely motionless.

Males hold territories scattered around the edges of permanent water bodies. Males aggressively defend their territories by wrestling invading males out of the territory or under water. Males call sporadically throughout the day. Calling frequency increases at night and males call in synchrony ("chorusing"). Chorusing may also occur during the day at the height of breeding season. Females approach males at their calling stations. Once in amplexus, the pair moves to a different area to lay eggs. Egg development is rapid taking anywhere from a few days to a week depending on water temperatures. Tadpoles grow quickly but do not metamorphose until their second or third summer. The tadpoles can grow to surprisingly large sizes, to 110 mm total length or more, before metamorphosis.

The number of tadpoles and juvenile frogs at a pond, especially in the Columbia Basin, can be astonishing in some locations. Because the tadpoles are unpalatable to fish, they are more visible than most of our native frog tadpoles. Small tadpoles can be observed grazing on submerged portions of lily pads and other vegetation. Large tadpoles are often visible in shallow water on the edges of ponds. They will quickly retreat to vegetation in deeper water if disturbed. Larger tadpoles will also gulp air at the water surface. This behavior is helpful in determining if a pond is occupied but must be used with the knowledge that larger Great Basin Spadefoot tadpoles, larval Tiger Salamanders and some aquatic insects also breach the water surface.

State Status Comments

American Bullfrogs are native to the eastern United States. They have been introduced throughout the west since the early part of the 1900s. The Bullfrog is now considered an invasive problematic species in Washington. Current Washington regulations prohibit transport of live Bullfrogs or Bullfrog tadpoles without a Washington Department of Fish and Wildlife permit.

In a newspaper article called "The 'Bushman' Frogs" from the Daily Olympian, September 3, 1972, Clara Snyder contends that her sister and brother-in-law, The Bushmans, were the first to introduce Bullfrogs to Thurston County. The Bushmans owned a farm near Offut Lake (then known as Bushman Lake, and also called Tempo Lake) and operated the M & B Bar in Centralia. The story goes that they acquired four pairs of Bullfrogs from Louisiana to put on display as an attraction to get more people to visit the M & B Bar. Other early introductions to Washington, and the West, were primarily for harvest of frog legs. In more recent times, people introduce them because they like to hear the booming call of the males during the summer. Until recently, Bullfrog tadpoles were sold in local nurseries for garden ponds. Even with regulations that limit new human introductions, the species will continue to spread by natural dispersal.

Inventory and Research Needs

Research efforts involving this species have focused on the impact Bullfrogs have on native species, particularly True Frogs (ranids). The authors are unaware of any Bullfrog natural history research for Washington.

Current or Recent Research in Washington

None at this time.

Threats and Management Concerns

Bullfrogs in their native range are important in structuring amphibian communities. Bullfrogs have been suggested to have negative impacts on native Washington species, especially the Oregon Spotted Frog, Leopard Frog, and Western Pond Turtles. Others have suggested that exotic warm-water fishes may actually be the main culprit in the decline of some native True Frogs (ranid) in the West and/or that Bullfrogs and exotic warm-water fishes interact in a way that results in a negative impact on native amphibians. In addition to predation and competition, there are also concerns that Bullfrogs may be vectors for diseases that can infect native frog populations.

References

Adams (2000), Adams et al. (2003), Garner et al. (2006), Harding and Holman (1992), Hayes and Jennings 1986, Hallock and Leonard (1997), Hecnar and M'Closkey (1996), Kruse and Francis (1977), Lardie (1963), Leonard et al. (1993), McAllister and Leonard (1997), McAllister et al. (1999), Nussbaum et al. (1983), Pearl et al. (2004), Stebbins (2003), Washington Dept. of Wildlife (1993).

Hallock, L.A. and McAllister, K.R. 2009. American Bullfrog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

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Photos and Key Features

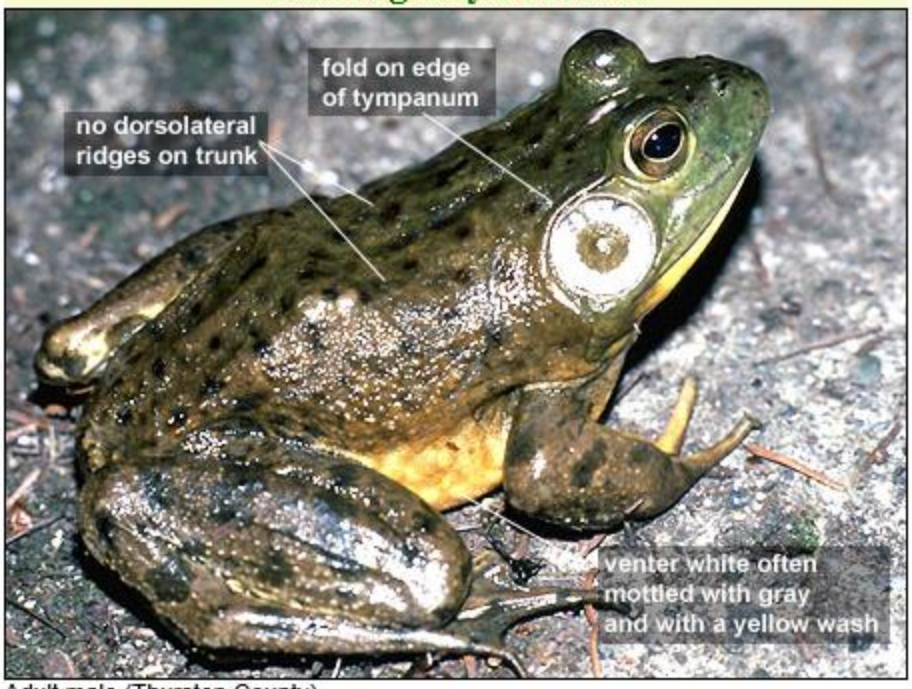
Bullfrog

Adult male (Thurston County)

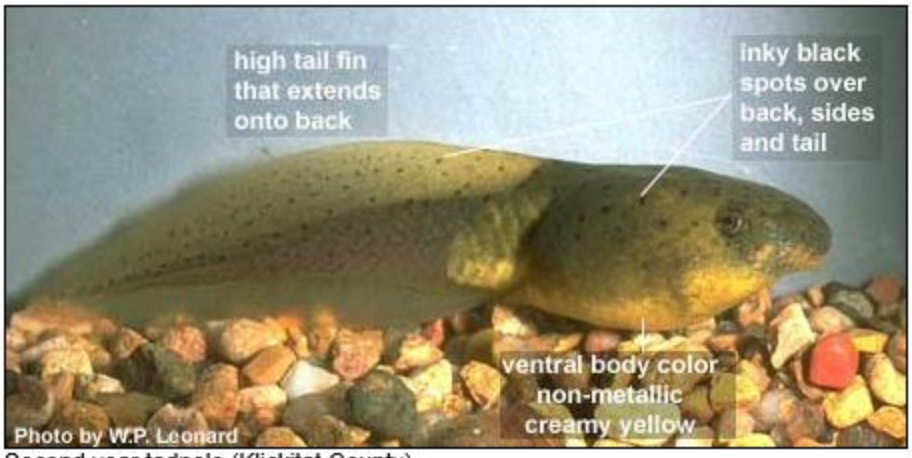
Second year tadpole (Klickitat County)

Adult male (Skamania County)

Bullfrog Key Features



Adult male (Thurston County)



Second year tadpole (Klickitat County)

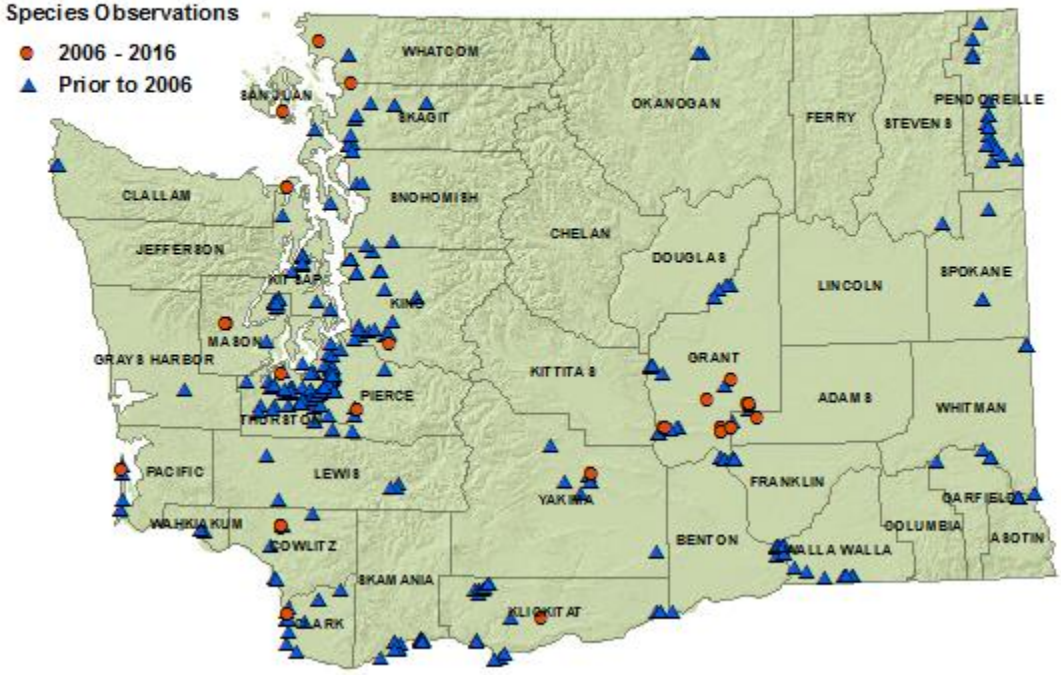
Close-up of head showing ridge behind tympanum (Thurston County)

Underside of adult (Thurston County)

Male (Skamania County) Female

Distribution Map

Bullfrog - Known Distribution



Cascades Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Salamander
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Cascades Frog

Taxon, Status, and Rank

Species	*Rana cascadae*	Slater, 1939
Family	Ranidae (True Frogs)	
Status	None	
State Rank	S3S4	
Global Rank	G3G4	

General Description

This is a medium-sized frog with a slender body, relatively smooth skin, two distinct parallel ridges of skin (dorsolateral folds) on the dorsal sides of the body, and an eye mask. Adults grow to about 75 mm snout-vent length. The dorsal color is tan, brown or olive-brown with inky black spots with distinct margins. The undersides of the legs and margin of the abdomen are honey yellow. Black and cream to greenish-yellow mottling is present on the sides of the body at the juncture between body and legs (the groin). The legs are long and webbing on the toes does not extend past the first joint on the longest toe. Juveniles resemble adults but may not have the distinct yellow coloration on the undersurfaces. Mature males have gray swollen pads, called nuptial pads, on the thumbs.

Larvae-The tadpole has an oval body with dorsal eyes. The dorsal fin terminates posterior to the tube for moving respiratory water out of the body (spiracle) and is relatively low. The tail tip is pointed. At hatching, the tadpoles are dark brown but appear black in most light. As they grow, they develop metallic pigmentation that is silvery or brassy. Tadpoles grow to between 50 to 75 mm total lengths before metamorphosis.

Eggs –Individual egg masses are globular and roughly the size of a grapefruit. The eggs are laid communally with many (sometimes 60 or more) females depositing their eggs next to or on top of the eggs of other females. Individual egg masses may also be present in the vicinity of the communal cluster(s). The egg masses are laid near the water surface in shallow water (less than 15 cm deep). Some egg masses in the communal cluster may break the water surface. The egg masses are not attached to vegetation.

Voice –The advertisement call is a series of weak, slow, low croaks or chuckles. One must be in close vicinity to the breeding site to hear the males. Males call during the day. Intensity increases on sunny days.

See Photos Page.

Identification Tips

Frogs - The presence of dorsolateral folds distinguishes all native True Frogs (ranid species) from other anurans in Washington State. The native True Frogs including Cascades Frog, Northern Red-legged Frog, Oregon Spotted Frog and Columbia Spotted Frog are brownish colored frogs that are similar in general appearance. Cascades Frogs are distinguished by the honey-yellow coloration on the abdomen and undersides of the legs and the following traits: 1) the groin has weak mottling of black and greenish yellow or cream where dorsal coloration meets ventral coloration but it is unlike the distinct patch of multiple colors seen in Northern Red-legged frogs, 2) the dorsal spots are inky black with distinct edges that are neither ragged or blurred, 3) dorsolateral folds are present along the entire dorsal margins, 4) the eyes are oriented outward (laterally) so that only a portion of the pupil is visible when the frog is viewed from above, and 5) webbing is reduced between the toes so that the webbing on the longest toe does not extend past the first joint and the webbing is concave when the toes are pulled apart.

Some Cascades Frogs have a small amount of red pigmentation on the underside of the body but not to the extent seen in the Red-legged, Oregon Spotted and Columbia Spotted frogs. Small juvenile Northern Red-legged Frogs and both species of Spotted Frogs often lack the red or orange ventral pigmentation. Small juvenile Cascades Frogs may lack the yellow ventral pigmentation.

The American Bullfrog and American Green Frog, introduced True Frogs, have a distinct fold (supratympanic fold) from the posterior edge of the eye, around the top of the external ear (tympanum) and ending at the shoulder; and typically exhibit green coloration on the face.

Lastly, Cascades Frogs typically occur at higher elevations than the Northern Red-legged Frog, American Bullfrog and American Green Frog.

Larvae- Pacific Treefrog tadpoles differ in having eyes along the outline of the head when viewed from above. Western Toad tadpoles are black dorsally and ventrally, have minimal if any metallic flecking, have flattened bodies, have a tail fin that does not extend onto the back and have narrowly placed dorsal eyes on top of the head. Large American Bullfrog and Green Frog tadpoles have distinct black spots over the body on a khaki-colored dorsal ground color and the abdomen is an opaque yellow (intestines not visible) with no metallic pigment (Bullfrog) or coppery sheen (Green Frog). The tadpoles of the Northern Red-legged Frog, Oregon and Columbia Spotted frogs, and Cascades Frog are similar enough that distinguishing them in the field is challenging (see Recommended Field Guides and Keys on the Home Page).

Eggs – The Cascades Frog, Oregon Spotted Frog and Columbia Spotted Frog typically lay their eggs in communal clusters that consist of many (up to 60 or more) egg masses laid next to or on top of each other in shallow (≤ 15 cm) water. Although there are some subtle differences, one can not reliably distinguish the egg masses in the field. At some sites in Oregon, Cascades Frogs and Oregon Spotted Frogs will even lay eggs in the same communal clusters. Range differences, and to some extent elevation, can be used in some areas to determine the more likely species. Raising tadpoles to confirm identification may be necessary in some circumstances. Collection of any amphibian life stage requires a Washington Department of Fish and Wildlife scientific research permit.

The egg mass of the Northern Red-legged Frog looks similar to a single Cascades Frog egg mass. The Northern Red-legged Frog egg mass will, however, be attached to some type of vegetation if it is available; will typically be in deeper water (> 15 cm); and the individual eggs (ova) are typically much larger averaging almost twice the diameter [3.5 mm] in Northern Red-legged Frogs versus the others species (close to 2 mm).

The Northwestern Salamander has a fist-sized globular egg mass that is solid to the touch, always attached to vegetation and the animal pole of the egg (ovum) and the embryos are brown not dark brown or black.

See Key Features Page.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Phenology

Breeding behavior starts as soon as ice has melted and waters at the oviposition sites have reached approximately 8° C. This is typically between April and June. Breeding is explosive with all females laying eggs within a short period of time. Development time to hatching takes two to four weeks depending on temperature and sun exposure. The larval period is about two months long. Overwintering behavior is currently (2009) being studied by Central Washington University graduate student April Barreca.

Range

In Washington, Cascades Frogs occur in the Pacific Coast, North Cascades, West Cascades and East Cascades ecoregions.See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Cascade Frogs are found primarily at higher elevations (most above 2000 ft. [610 m] in Washington) with suitable breeding sites. It is not unusual to find them away from water bodies. However, most individuals are found in the vicinity of standing or flowing water. They can be active both day and night. Cascades Frogs can be abundant at sites where they occur.

Breeding habitats include a variety of still water bodies that generally persist for at least two months after snow melt. Breeding sites include wetlands, ponds, lakes, flooded meadows, small alpine ponds and still water edges of small creeks. Eggs are laid in shallow open areas that receive sun. Tadpoles are bottom feeders that prefer muddy or silty substrate in shallow water.

State Status Comments

This is a common species that remains widespread throughout its historical habitat in Washington.

Inventory and Research Needs

Monitoring of populations is recommended due to general declines of True Frogs (ranid species). Annual egg mass surveys to determine number of breeding females (one egg mass per adult female) is the most efficient method for monitoring populations of this species for long-term trend analyses.

Current or Recent Research in Washington

April Barreca, a graduate student at Central Washington University, is studying overwintering behavior of Cascade Frogs in the Wenatchee National Forest. She is radio-tracking frogs to their overwintering locations to determine if adequate overwintering habitat influences abundance and distribution.

Threats and Management Concerns

The authors are unaware of any published reports of Cascades Frog declines in Washington. Results of surveys in Olympic National Park in the late 1990s found Cascades Frogs to be among the most commonly encountered pond breeding species and no evidence of declines was reported. They have also re-colonized sites at Mount St. Helens. Declines have, however, been reported from Oregon and most severely from California.

References

Bury and Adams (2000), Leonard et al. (1993), NatureServe (website accessed March 2009), Nussbaum et al. (1983).

Personal communications: April Barreca, M. Blouin, C. Crisafulli, M. Hayes

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Hallock, L.A. and McAllister, K.R. 2009. Cascades Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

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Photos

Cascades Frog

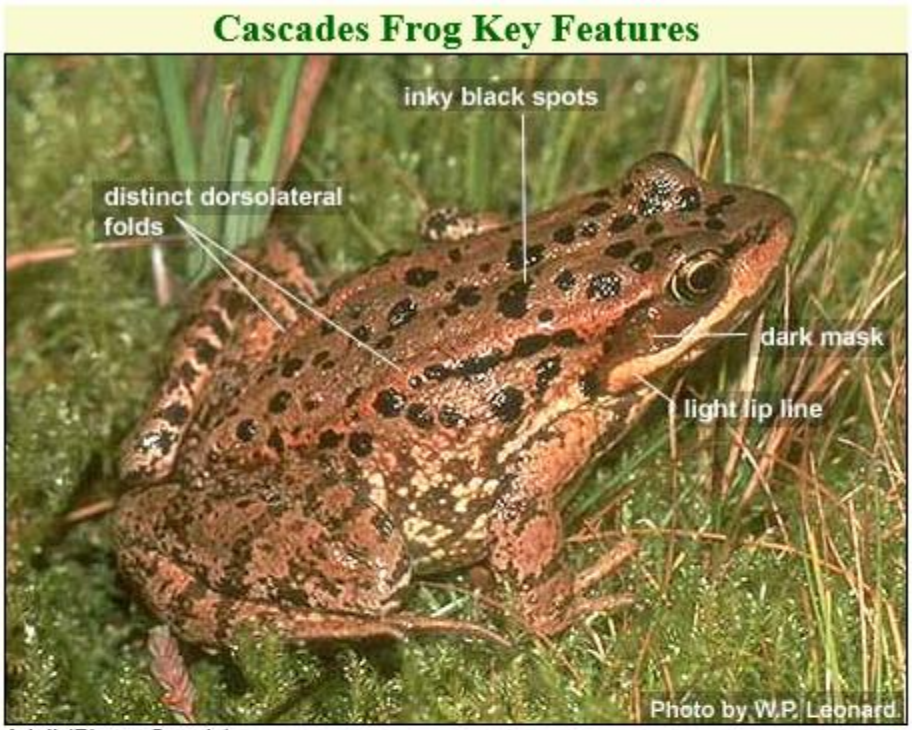
Adult (Pierce County)

Adult (Mason County)

Adult (Pierce County)

Habitat (Snohomish County)

Key Features



Adult (Pierce County)

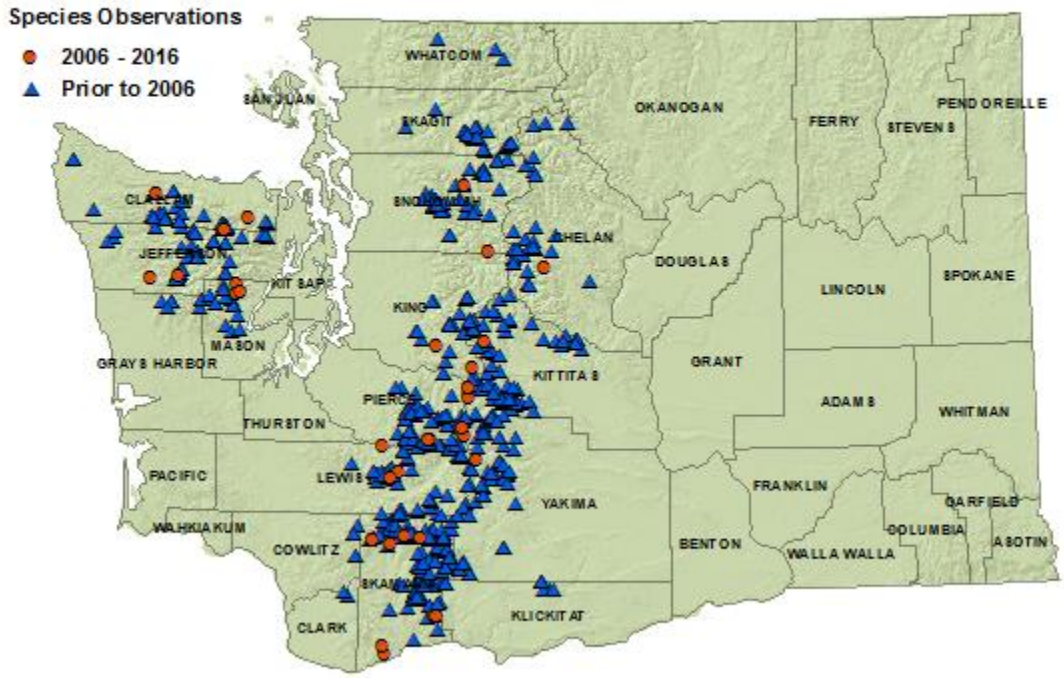
Underside of adult (Pierce County)

Honey colored underside of adult (Skagit County)

Detail of groin region

Distribution Map

Cascades Frog - Known Distribution



Columbia Spotted Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Columbia Spotted Frog

Taxon, Status, and Rank

Species	*Rana luteiventris* Thompson
Family	Ranidae (True Frogs)
Status	State Candidate, USFWS Species of Concern
State Rank	S4
Global Rank	G4

General Description

This is a medium to large (adults from 42 mm to 103 mm snout-vent length) aquatic frog. The dorsal color is beige or olive-brown to brick red with black spots that have ragged edges and light centers. In Washington, the undersides of the legs and margin of the abdomen are typically orange to red (absent in newly metamorphosed frogs and small juveniles). The legs are relatively short and the toes are nearly fully webbed. The eyes are oriented upward laterally at roughly a 45° angle. Breeding males develop large forelimbs and thumb bases and have a dark nuptial pad on each thumb. The call is a series of six to nine low-pitched clucks similar to the sound made when the tongue is clicked against the roof of the mouth. One must typically be within 5 m to hear this faint call.

The tadpole has an oval body with dorsal eyes, a vent on the right side, a spiracle on the left side and a dorsal fin that originates on the body near the dorsal tail-body junction. The tip of the tail is pointed. At hatching, the tadpoles appear black, have long tails (> 1.5 times body length), obvious gills and remain associated with the egg mass for days. As the tadpoles grow, the ground color and belly lighten and silver flecks appear, eventually covering the gut. Tadpoles can grow to large sizes (110 mm total length) before metamorphosis. Larger tadpoles, with an undamaged tail, have a tail length to body length ratio of over 2.6.

Individual egg masses are globular, loose to the touch, grapefruit-sized and not attached to a vegetation brace, although they may stick to the vegetation under the egg masses. The eggs and larvae appear black (but are actually dark brown). The frogs lay the egg masses at water body margins in water usually less than 15 cm deep. The top of the egg mass is often exposed at the water surface. Egg masses are typically communally laid, resulting in clustered egg mass groups of two to more than 100. Single egg masses in the vicinity of multi-mass clusters are common. See Photos Page.

Identification Tips

Native True Frogs (*Rana* species) in Washington have dorsolateral folds (unlike other Washington anurans) and are similar in appearance. The Columbia and Oregon Spotted Frog species have subtle color variations, but are morphologically indistinct (they were distinguished as separate species by genetic analysis) and may be separated by geographic locality. The Leopard Frog has well-defined oval and round dark spots with pale borders, conspicuous dorsolateral folds that extend the entire length of the body, and a white underside. The following traits distinguish the Columbia Spotted Frog from the Cascades and Northern Red-legged Frog: 1) the dorsal spots are black with ragged edges and light centers, 2) the eyes are oriented upward with the entire pupil of both eyes visible when the frog is viewed directly from above, 3) there is nearly full webbing between the toes with the webbing of the hind foot reaching almost to the tip of the longest toe and the webbing is almost straight when the toes are stretched apart, 4) the coloration in the groin area is similar to the coloration anteriorly on the side and posteriorly on the thighs with no obvious yellow and black mottled patch or patches, 5) when the hind leg is pressed forward against the body, the heel of the hind foot will seldom reach the nostril (similarly, the knee to heel measurement is typically less than half of the snout-vent length), and 6) the dorsolateral folds are interrupted about two-thirds the distance down the back from the eye and often disappear entirely posteriorly. The above traits may be difficult to see or absent in small juvenile frogs. Bullfrogs, a common non-native species, have a distinct fold from the posterior edge of the eye, around the top of the tympanum and ending at the arm and they lack dorsolateral folds.

In general, it is difficult to distinguish the tadpoles of the Columbia Spotted Frog from those of the Cascades Frog and Northern Red-legged frog. Larger tadpoles (i.e., > 50 mm total length) of the Columbia Spotted Frog have a tail length to body length ratio of 2.7, whereas Cascades Frog and Northern Red-legged Frog have a tail length to body length ratio 2.6 or smaller. This criterion can only be used if the tail is undamaged. The abdominal muscles of Leopard Frogs are relatively transparent resulting in a clear view of the intestines and the dorsal fin is colorless. Bullfrog and Green Frog (an uncommon non-native species) tadpoles are also similar but larger tadpoles have distinct black spots over a typically khaki-colored body and tail and the abdomen is opaque and lacks pigments with a metallic quality.

The communal egg masses of the Columbia Spotted Frog and Cascades Frog cannot be easily distinguished. Northern Red-legged Frogs and Leopard Frogs do not lay egg masses in communal overlapping clusters, although they may be closely spaced if the vegetation braces to which the egg masses are attached are close together; rather they attach egg masses to vegetation individually in water that is usually over 25 cm deep. The Northwestern Salamander has a grapefruit-sized globular egg mass, but its jelly is solid to the touch, always attached to vegetation or woody debris, and the eggs and larvae are brown not black. No other species that occur in the same range and habitat have large globular egg masses. See Key Features Page.

Phenology

Breeding in the Columbia Basin, at elevations near 1800-2000 feet (548-609 m), begins in late March to early April. In the Okanogan Highlands breeding starts in late April to early May at mid-elevation sites between 2000 and 3500 feet (609-1066 m) and late May to early June at elevation sites > 4500 feet (1371 m). Embryos take approximately 3-5 weeks to develop, depending on the temperature regime and elevation. Tadpoles transform in the summer or fall of their first year. Metamorphosis may be delayed at higher elevation sites. Columbia Spotted Frog over-wintering behavior has not been studied in Washington.p>

Range

In Washington, the Columbia Spotted Frog occurs east of the Cascade Mountain crest in the East Cascades, Okanogan, Canadian Rocky Mountain, Columbia Basin, and Blue Mountain Ecoregions, spilling over the Cascade crest to the west slope in the north Cascades near Harts and Rainy Passes. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Habitat and Habits

This species is relatively aquatic and is rarely found far from water. It occupies a variety of still water habitats and can also be found in streams and creeks. It is common to see these frogs basking on the shore or on floating debris. Breeding habitat is the temporarily flooded margins of wetlands, ponds and lakes. Flooded pools and still water edges of creeks may also be used in some areas. Egg masses are placed in areas where they receive little or no shading from vegetation. Waters that remain aerobic and do not freeze to the sediments (such as springs and creeks) are most likely necessary for winter survival in areas subject to freezing.

State Status Comments

This species is common in the Okanogan Highlands and the northern Cascade Mountains. Small, scattered populations occur in the shrub-steppe vegetation zones of the Columbia Basin. Due to the decline of its sibling species, the Oregon Spotted Frog, and the decline of Columbia Spotted Frog populations in other states, this species is being monitored in Washington.

Inventory and Research Needs

Information is needed on occurrence and status of populations in the Columbia Basin and the Blue Mountains. Research is needed on the impact that forestry practices, cattle grazing, and non-native species introduction (primarily fish and Bullfrogs) have on spotted frog populations. As Columbia Spotted frogs have also been recorded in off-channel habitats along larger riverine systems, the effects of hydrological changes on off-channel habitats in impounded systems need study.

Threats and Management Concerns

Human induced changes in hydrology, water quality and wetland integrity are the major threat to this species. Nonnative fish and Bullfrogs are also a potential threat to this species. Beaver maintain a wetland habitat mosaic that is important for this species; beaver removal may be detrimental. Successional changes in vegetation may also threaten this species, but are unstudied.

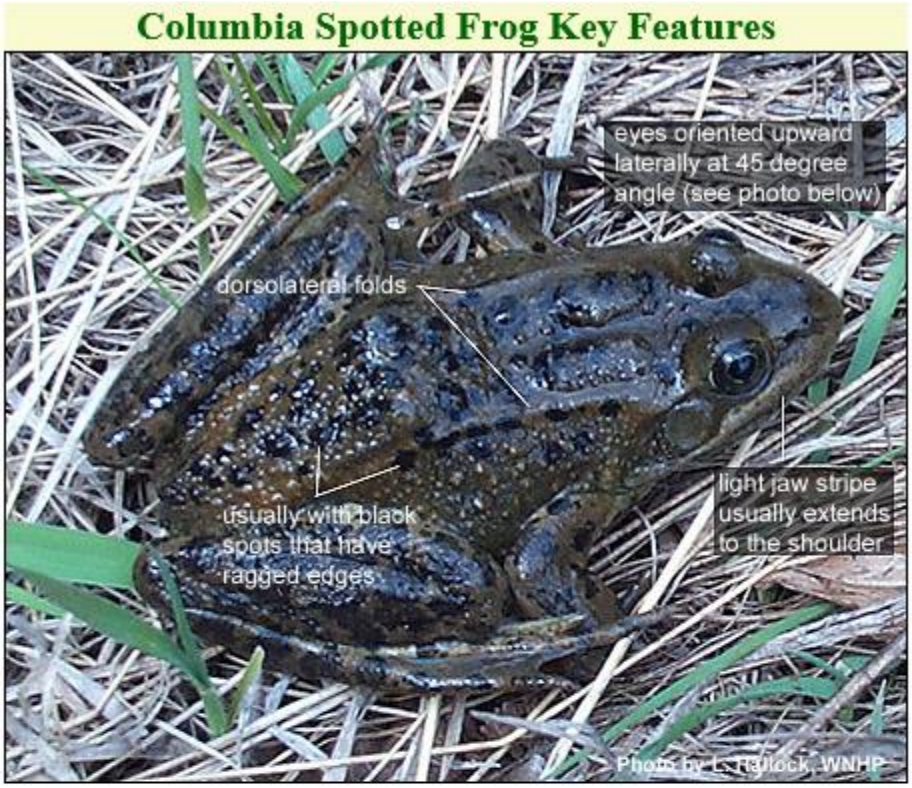
References

Corkran and Thoms (1996), Green et al. (1997), Leonard et al. (1993), Nussbaum et al. (1983), Stebbins (1985).

Personal communications: M. Hayes

Hallock, L.A. and McAllister, K.R. 2005. Columbia Spotted Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Key Features



Adult (Pend Oreille County)

Detail of groin region (Okanogan County)

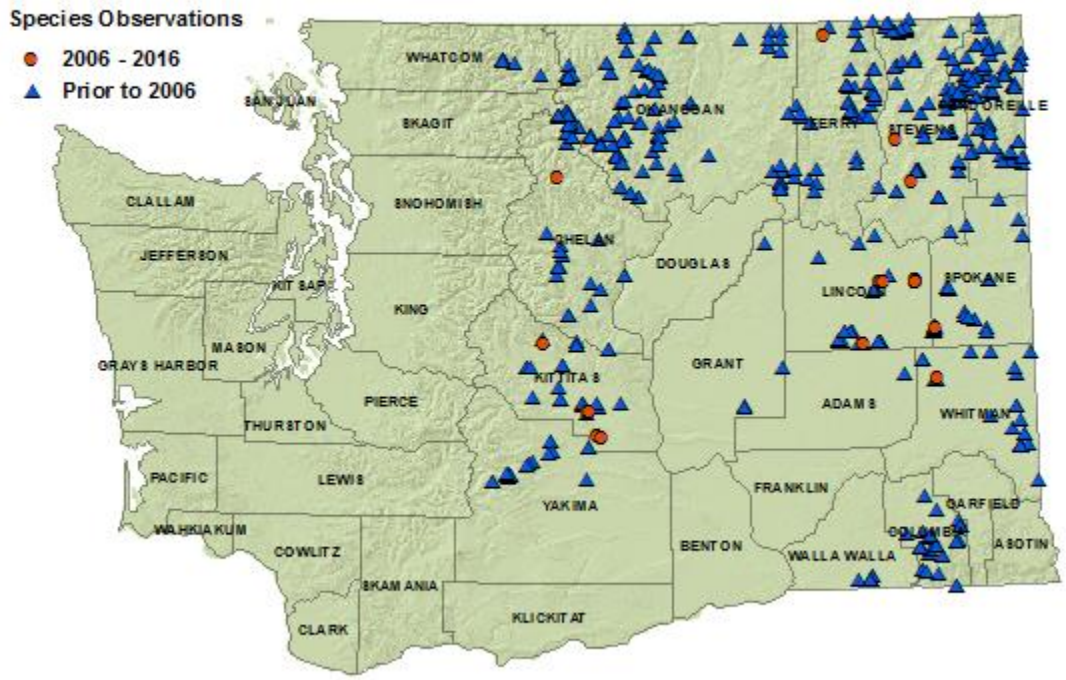
Underside of Adult (Pend Oreille County)

Detail showing upturned eyes (Spokane County)

Detail of foot showing webbing (Spokane County)

Distribution Map

Columbia Spotted Frog - Known Distribution



American Green Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern

American Green Frog

Taxon, Status, and Rank

Species	*Rana clamitans* Latreille, 1801 = *Lithobates clamitans*
Family	Ranidae (True Frogs)
Status	None
State Rank	SE
Global Rank	G5

General Description

This is a large, heavy-bodied frog with a distinct fold of skin (supratympanic fold) that extends from the eye, around the posterior edge of the external ear (tympanum) to the shoulder. Two distinct parallel ridges of skin (dorsolateral folds) are present on the dorsal sides of the body. The tympanum has a light yellow area in the center.

Adults attain sizes up to 100 mm snout-vent length. The dorsal color is tan, brown or olive-brown with little to no black speckling. Dark spots may be present on the dorsal surface. Dark bands are present on the legs. Adults have green pigmentation on the sides of the head. Ventrally the body and legs are white to cream colored. Females may have some dark chest mottling. Juveniles resemble adults. Mature males have a tympanum much larger than the size of the eye, whereas females have a tympanum similar in size to the eye. Mature males also have a bright yellow throat and gray swollen pads (nuptial pads) on the thumbs.

Larvae- The tadpole has an oval body with dorsal eyes. The dorsal fin terminates on the body and the tail tip is pointed. Large tadpoles (greater than 25 mm total length) are olive green dorsally with dark spots over the dorsal surface. The ventral surface is opaque and cream colored with a coppery sheen. The throat area has dark green mottling. Small tadpoles (less than 25 mm total length) are darker. Tadpoles may attain a length of 90 mm total length before metamorphosis.

Eggs – A female lays 1000-5000 eggs in a thin film at the water surface usually attached to vegetation. The eggs typically cover an area less than 30 cm in diameter. Three gelatinous layers (envelope) surround the egg (ovum).

Voice – The Green Frog produces a low-pitched, single-note advertisement call that sounds like a low-note banjo string being plucked "Clung!" This call may be given as a single note or repeated several times in a row. Alarmed Green Frogs, basking on water edges, produce a loud squawk as they dive into the water.

See Photos Page.

Identification Tips

Frogs – The American Green Frog has been introduced to Washington in a few places. Documented occurrences are in Whatcom, Stevens and King counties.

No native Washington frog or toad has the supratympanic fold around the outer ear area. The exotic but common American Bullfrog can be easily distinguished from the Green Frog by the lack of dorsolateral folds. This trait is present and distinct in Green Frogs. Also, full-sized Bullfrogs are much larger than the American Green Frog.

Larvae- American Green Frog tadpoles are easy to distinguish from all native Washington tadpoles. Larger tadpoles are olive green with dark spots over the entire dorsal surface. The ventral surface is opaque cream-colored or yellow with coppery pigmentation and dark green mottling on the throat. American Bullfrogs tadpoles are similar but have distinct black flecks (not spots) over the dorsal surface and the belly has no metallic pigmentation. Bullfrogs also lack the dark green pigmentation on the throat.

Eggs – All native Washington frog species have globular egg masses and our toad species produce eggs in strings. The non-native American Bullfrog is the only species one will encounter in Washington with an egg mass similar to the American Green Frog. The American Bullfrog is widespread in the lowlands of Washington. The egg mass differs in being larger than 30 cm in diameter, being more than one egg layer thick, and individual eggs have only one gelatinous layer (envelope) surrounding the egg (ovum).

Both American Bullfrog and American Green Frog males produce vocalizations throughout the summer. This habit can be helpful in determining which species is breeding at a site. The American Bullfrog advertisement call is a loud, deep, bass call that is repeated several times in each series. The call has been described as "jug-o'-rum" and "br-rum."

See Key Features Page.

Phenology

No natural history papers have been published for the American Green Frog in Washington and neither of the authors has encountered this species in Washington. Life history traits are probably similar to the American Bullfrog. Calling likely commences in May or June. Egg laying likely takes place June to August. Tadpoles transform their first year or may overwinter and transform their second year.

Range

In Washington, American Green Frogs have been documented in the Puget Trough Ecoregion and Canadian Rocky Mountain Ecoregion. More specifically, populations have been documented at Toad Lake, Whatcom County; Lake Washington, King County; and Lake Gillette, Stevens County. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Habitat and Habits

In their native range they occupy water bodies including wetlands, ponds, lakes, sloughs, creeks and rivers. Adults are primarily "shore frogs," spending most of their time on the edges of the water body they occupy. Juveniles will disperse into terrestrial habitats during rainy periods. Breeding habitats include a variety of permanent water bodies. Green Frogs likely overwinter in permanent water bodies near sources of well-oxygenated water.

Males hold territories scattered around the edges of permanent water bodies. Males aggressively defend their territories by wrestling invading males out of the territory or under water. Females approach males at their calling stations, apparently selecting males for mating based on habitat conditions at the calling site. Egg development is rapid taking anywhere from a few days to a week depending on water temperatures. Tadpoles grow quickly and may metamorphose their first year or may over winter and metamorphose their second summer. The tadpoles can grow to large sizes, 90 mm total length or more, before metamorphosis.

State Status Comments

The American Green Frog is native to the eastern United States. Populations introduced to Washington were probably for harvest of frog legs but little has been published regarding the species in Washington.

Inventory and Research Needs

Any information on this species is of interest. Populations are present just north of the Canadian-American border. It is possible the species has expanded its range into northern Whatcom County.

Observations can be submitted to the Washington Department of Fish and Wildife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Natural History and other information can be submitted to Lisa Hallock by E-mail lisa.hallock@dfw.wa.gov.

Current or Recent Research in Washington

The authors are unaware of any research on this species in Washington.

Threats and Management Concerns

American Green Frogs are smaller than American Bullfrogs and therefore may not be as problematic to native amphibians when it comes to predation. Competitive interactions and introduction of disease are potential issues.

References

Dvornich et al. (1997), Harding and Holman (1992), Hecnar and M'Closkey (1996), Nussbaum et al. (1983), Stebbins (2003).

Hallock, L.A. and McAllister, K.R. 2009. American Green Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

Photos

Adult male (Michigan)

Key Features

Adult male (Michigan)

Distribution Map

Green Frog - Known Distribution

Oregon Spotted Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Oregon Spotted Frog

Taxon, Status, and Rank

Species	*Rana pretiosa* Baird and Girard
Family	Ranidae (True Frogs)
Status	State Endangered Species, USFWS Candidate
State Rank	S1
Global Rank	G2

General Description

This is a medium to large (adults from 48 mm to 103 mm snout-vent length) aquatic frog. The dorsal color is olive-brown to brick red with black spots that have ragged edges and light centers. The undersides of the legs and margin of the abdomen are orange-red to red (absent in newly metamorphosed frogs and small juveniles). The legs are relatively short and the toes are nearly fully webbed. The eyes are oriented upward laterally at roughly a 45-degree angle. Breeding males develop large forelimbs and thumb bases and have a dark nuptial pad on each thumb. The call is a series of six to nine low-pitched clucks similar to the sound made when the tongue is clicked against the roof of the mouth. One must typically be within 5 m to hear this faint call.

The tadpole has an oval body with dorsal eyes, a vent on the right side, a spiracle on the left side and a dorsal fin that originates on the body near the dorsal tail-body junction. The tip of the tail is pointed. At hatching, the tadpoles appear black, have long tails (> 1.5 times body length), obvious gills and remain associated with the egg mass for days. As the tadpoles grow, the ground color and belly lighten and silver flecks appear, eventually covering the gut. Tadpoles can grow to large sizes (110 mm total length) before metamorphosis. Larger tadpoles, with undamaged tails, have a tail length to body length ratio of over 2.6.

Individual egg masses are globular, loose to the touch, grapefruit-sized and not attached to a vegetation brace, although they may stick to the vegetation under the egg masses. The eggs and larvae appear black (but are actually dark brown). The frogs lay the egg masses at water body margins in water usually less than 15 cm deep. The top of the egg mass is often exposed at the water surface. Egg masses are typically communally laid, resulting in clustered egg mass groups of two to more than 100. Single egg masses in the vicinity of multi-mass clusters are common. See Photos Page.

Identification Tips

Native True Frogs *(Rana* species) in Washington have dorsolateral folds (unlike other Washington anurans) and are similar in appearance. The Oregon and Columbia Spotted Frog species have subtle color variations, but are morphologically indistinct (they were distinguished as separate species by genetic analysis) and may be separated by geographic locality. The following traits distinguish the Oregon Spotted Frog from the Cascades and Northern Red-legged Frog: 1) the dorsal spots are black with ragged edges and light centers, 2) the eyes are oriented upward with the entire pupil of both eyes visible when the frog is viewed directly from above, 3) there is nearly full webbing between the toes with the webbing of the hind foot reaching almost to the tip of the longest toe and the webbing is almost straight when the toes are stretched apart, 4) the coloration in the groin area is similar to the coloration anteriorly on the side and posteriorly on the thighs with no obvious yellow and black mottled patch or patches, 5) when the hind leg is pressed forward against the body, the heel of the hind foot will seldom reach the nostril (similarly, the knee to heel measurement is typically less than half of the snout-vent length), 6) the dorsolateral folds are interrupted about two-thirds the distance down the back from the eye and often disappear entirely posteriorly, and 7) Cascade Frogs have honey-colored and yellow undersides, not red. The above traits may be difficult to see or absent in small juvenile frogs. Bullfrogs, a common non-native species, have a distinct fold from the posterior edge of the eye, around the top of the tympanum and ending at the arm and they lack dorsolateral folds.

In general, it is difficult to distinguish the tadpoles of the Oregon Spotted Frog from those of the Cascades Frog and Northern Red-legged frog. Larger tadpoles (i.e, > 50 mm total length) of the Oregon Spotted Frog have a tail length to body length ratio of 2.7 whereas Cascades Frog and Northern Red-legged Frog have a tail length to body length ratio 2.6 or smaller. This criterion can only be used if the tail is undamaged. Bullfrog and Green Frog tadpoles are also similar but larger tadpoles have distinct black spots over a typically khaki-colored body and tail and the abdomen is opaque and lacks pigments with a metallic quality.

The communal egg masses of the Oregon Spotted Frog and Cascades Frog cannot be easily distinguished. Northern Red-legged Frogs do not lay egg masses in communal overlapping clusters, although they may be closely spaced if the vegetation braces to which the egg masses are attached are close together; rather they attach egg masses to vegetation individually in water that is usually over 25 cm deep. The Northwestern Salamander has a grapefruit-sized globular egg mass, but its jelly is solid to the touch, always attached to vegetation or woody debris and the eggs and larvae are brown not black. No other species that occur in the same range and habitat have large globular egg masses. See Key Features Page.

Phenology

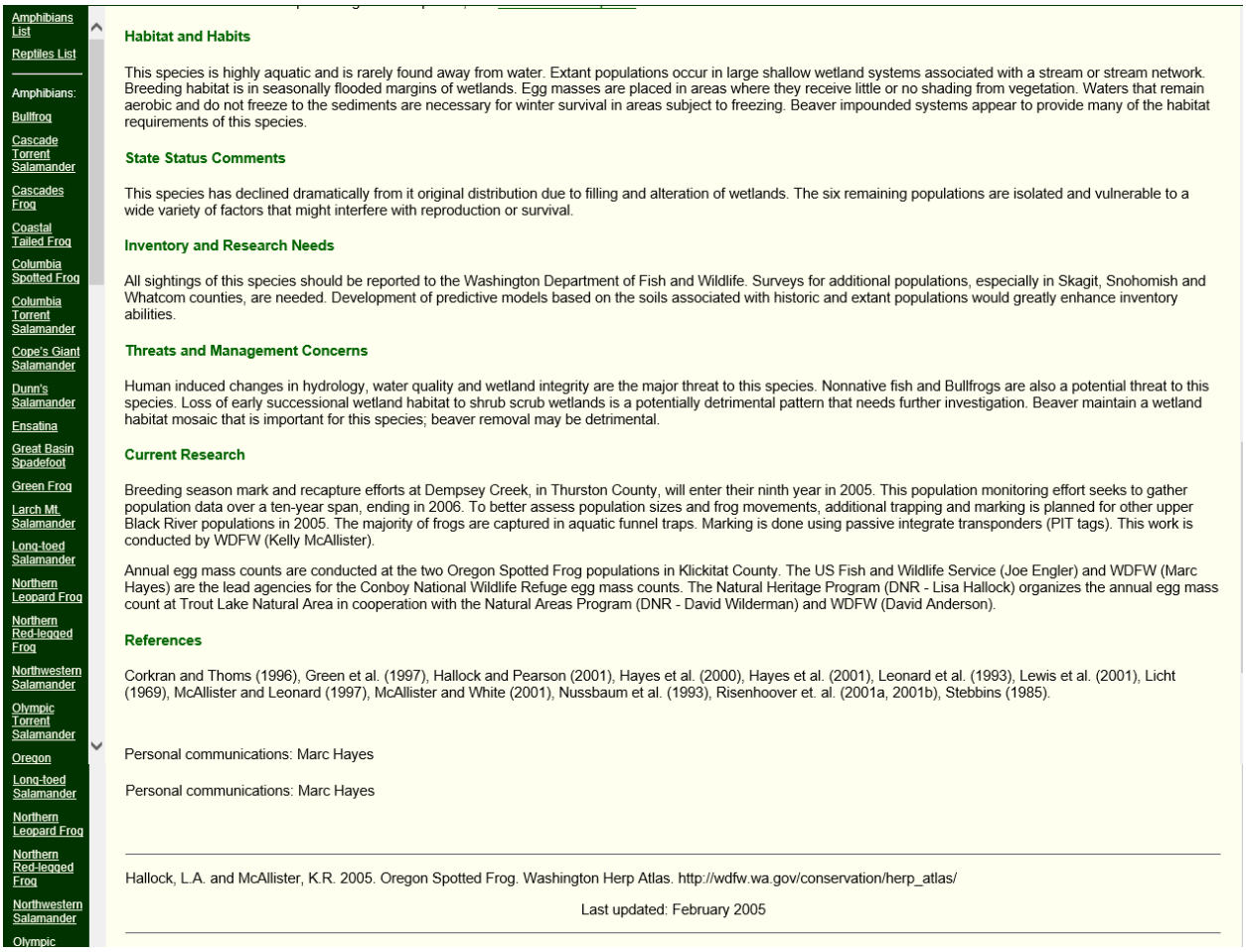
Breeding in Thurston County starts at the end of February or very early March at elevations less than 100 feet (30 m). Breeding in Klickitat County starts in early to mid-March at elevations of 1800-1950 feet (549-594 m). Embryos take approximately three weeks to develop to hatching. Tadpoles transform in mid-summer to early fall of their first year. Recent telemetry studies of three Washington populations revealed that the frogs move underwater throughout the winter months though surface activity diminishes or ceases entirely.

Range

The historical range in Washington is the Puget Trough Ecoregion and the southern extent of the Eastern Cascades Ecoregion. Only six populations are known, four in Thurston County and two in Klickitat County. See Distribution Map.

In Thurston County, the upper Black River population has been split into 3 separate and distinct populations. Funnel trapping and habitat assessments in areas separating known breeding sites determined that movements of frogs between sites was likely rare, at best.

For information on the complete range of this species, see NatureServe Explorer.



Photos (next page)

Oregon Spotted Frog

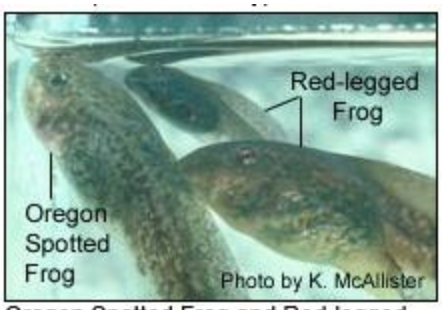
Adult (Klickitat County)

Adult (Thurston County)

Communal egg mas cluster below water surface (Thurston County)

Communal egg mass cluster at water surface (Klickitat County)

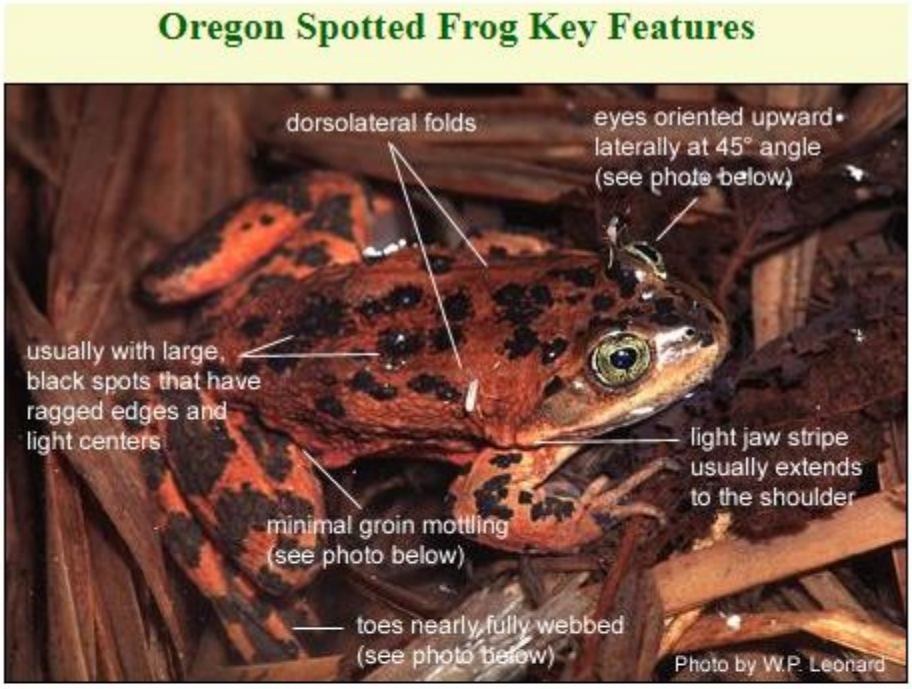
Large tadpole (Klickitat County)



Oregon Spotted Frog and Red-legged Frog tadpoles showing similarities between the two species

Egg laying habitat (Klickitat County). Photo shows biologists searching for egg masses.

Key Features



Adult (Klickitat County)

Detail showing groin region (Thurston County)

Underside of Adult (Klickitat County)

Detail showing upturned eyes (Thurston County)

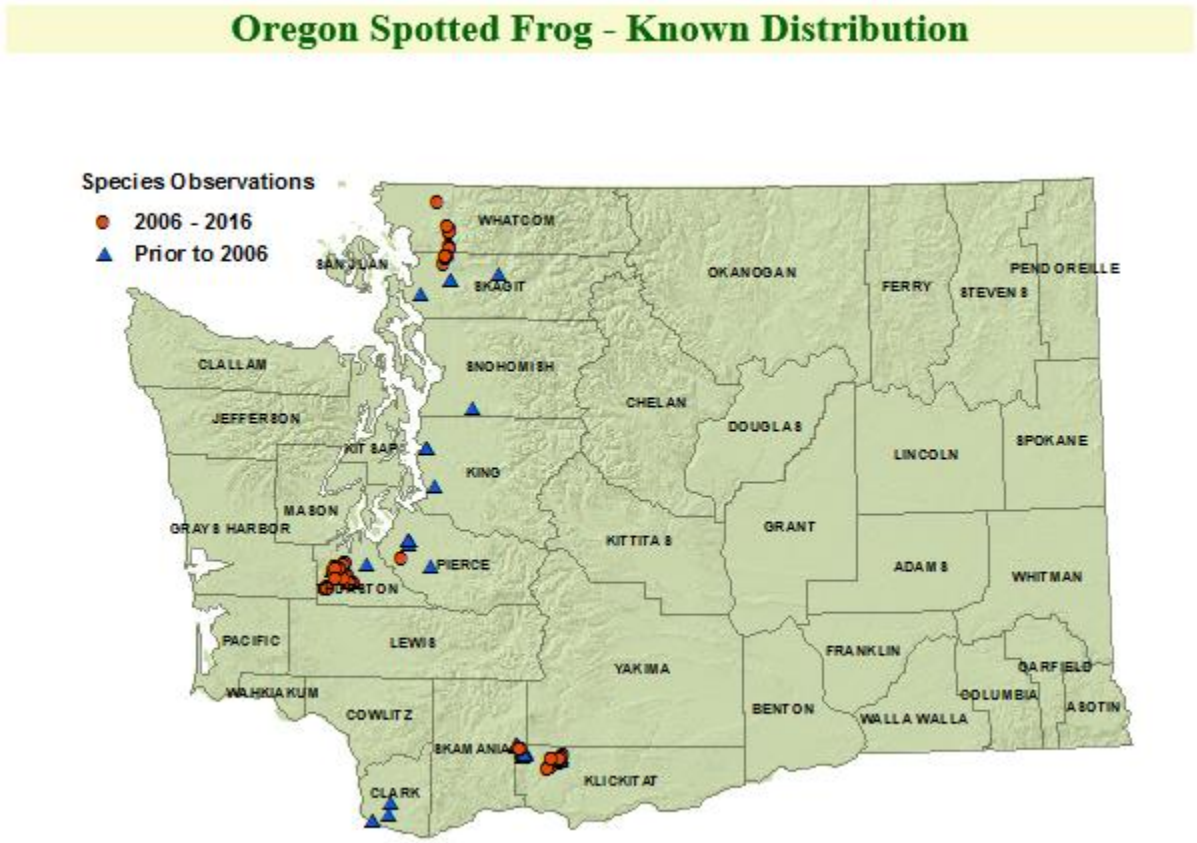
Underside of adult (Thurston County)

Thumb of adult male showing nuptial pad (Thurston County)

For detail of foot showing webbing, see Columbia Spotted Frog.

For differences between spotted and red-legged frogs, see Red-legged Frog.

Distribution Map



Northern Leopard Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern

Northern Leopard Frog

Taxon, Status, and Rank

Species	*Rana pipiens* Schreber
Family	Ranidae (True Frogs)
Status	State Endangered Species
State Rank	S1
Global Rank	G5

General Description

This is a medium to large (80-100 mm snout-vent length) aquatic frog with a slender body, thin waist, long legs and smooth skin. The dorsal color is brown or green with distinct round or oval dark spots in two to three irregular rows between conspicuous light-colored dorsolateral folds. The spots typically have a light border. Spotting also occurs on the limbs. The dorsolateral folds extent to the groin. The belly is cream or white with no dark markings. The tadpole has an oval body with dorsal eyes, a vent on the right side, a spiracle on the left side and a dorsal fin that originates on the body near the dorsal tail-body junction. The tip of the tail is pointed. The tail fin is translucent with or without fine dark markings. At hatching, tadpoles are uniformly dark. As they increase in size, they develop silver or gold pigmentation over the body and concentrated on the belly. The intestines are clearly visible through the abdominal muscles. The egg mass is 65-100 mm in width and attached to vegetation in shallow water. Smaller clusters of 20-40 eggs may be present near the main cluster. The ova are less than 2 mm in diameter. The gelatinous covering around the eggs is thin resulting in eggs that are packed closely together within the mass. See Photos Page.

Identification Tips

The presence of dorsolateral folds separates native Washington True Frogs (*Rana* species) from other Washington anurans. The Leopard Frog is the only Washington frog with distinct round or oval dark spots arranged in two to three irregular rows between conspicuous light-colored dorsolateral folds. Tadpoles of the Bullfrog and Columbia Spotted Frog are similar and occupy the same range. Bullfrog tadpoles (> 12 mm snout-vent length) have distinct black spots over the dorsal surface of the body. Other references should be consulted to accurately separate Leopard Frog and Columbia Spotted Frog tadpoles, but in general, Leopard Frog tadpoles (> 12 mm snout-vent length) differ in lacking dark mottling on the tail fin and having abdominal muscles that are nearly transparent. The Columbia Spotted Frog is the only amphibian within the Washington range of the Leopard Frog that also has grapefruit-sized globular egg masses. Leopard Frogs do not have multi-clustered egg masses placed together in one pile, but rather they attach single egg masses to vegetation in water over 15 cm deep. Spotted frogs have a thicker jelly coat around the eggs and therefore the eggs do not appear tightly packed within the mass (except when the egg mass is first laid). See Key Features Page.

Phenology

At the Potholes Reservoir breeding takes place from late March to late April and may continue into May. Two egg masses were found in 2004. Both were in the early stages of development on 14 April and 26 April and had probably been laid within 7 days. Small (1 cm total length) tadpoles were also found on 14 April. On 28 April a pair of frogs in amplexus were observed. Development of the eggs to hatching took approximately two weeks. Newly metamorphosed froglets were found starting in mid-July and continued to show up at ponds in September.

Range

Historical occurrences are from the ColumbiaPlateau, Okanogan and Canadian Rocky Mountain Ecoregions. Historical sites for this species include the Pend Oreille River (Pend Oreille Co.), the Potholes Reservoir (Grant Co.), Alder Creek (Klickitat Co.) and sites along the Columbia, Snake, Spokane, and Walla Walla rivers. Occurrences at Spectacle Lake (Okanogan Co.) and Washington State University Campus (Whitman Co.) may have been introduced. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Historical occurrences are from the steppe vegetation zones and from habitats near the Pend Oreille River. Aquatic habitats includes lakes, ponds, creeks and rivers. The frogs move over land but little is known about terrestrial habitat use in Washington.

State Status Comments

The only confirmed occurrences in the last decade are from the Moses Lake-Potholes Reservoir and Gloyd Seeps areas. These populations inhabit relatively small areas where they are vulnerable to many possible threats including those posed by exotic species (such as Bullfrogs and carp) and the adverse effects of fertilizers and pesticides in an important agricultural region.

Inventory and Research Needs

All sightings of this species should be reported to the Washington Department of Fish and Wildlife. Inventories should continue in the hope that there are extant populations as yet undiscovered. Basic descriptions of life history and population characteristics are still largely lacking, including length of embryonic development, timing of metamorphosis, age-specific growth rates, annual mortality, population size, age at first breeding, and fecundity. Movement patterns and seasonal habitat use are also important areas for investigation. Monitoring of Bullfrog populations in the vicinity of the Potholes Reservoir is also recommended in order to make sure that Bullfrog dispersal into Potholes Reservoir is not occurring.

Threats and Management Concerns

Exotic predators and competitors such as Bullfrogs, carp, mosquito fish and other introduced predatory fishes are the suggested cause of the Leopard Frog decline in Washington and elsewhere. Pesticides, applied to crops or for mosquito control, as well as use of some fertilizers, have also been suggested as potential threats.

Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Current Research

During 2002 – 2004 WDFW biologists surveyed extensively around the north end of Potholes Reservoir to determine current distributions of leopard frogs, bullfrogs, and to a lesser degree, non-native sport fish. The largest remaining concentration of leopard frogs is in an area largely free of all non-native vertebrates except carp. In spring 2004 WDFW began a formal study into effects of habitat variation, non-native sport fish, and bullfrogs on leopard frog reproductive success, age class structure, and habitat selection & survival during fall migration. The initial focus of the study ('04 – '05) is to relate leopard frog variables to non-native vertebrate abundance and habitat configuration. Once we establish baseline information, WDFW plans to experimentally manipulate non-native fish, bullfrogs, and habitat characteristics, then monitor leopard frog response over the following several years. Other factors such as chemical pollutants and disease may be affecting leopard frogs as well, and WDFW will consider studying these during the post-experimental treatment phase of research. Submitted by Steve Germaine, lead researcher on project (WDFW).

References

Corkran and Thoms (1996), McAllister et al. (1999), McDiarmid and Altig (1999), Nussbaum et al. (1983), Stebbins (1985), Stebbins and Cohen (1995).

Personal communications: S. Germaine. D. Hays, H. Simmons, J. Wisniewski

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Hallock, L.A. and McAllister, K.R. 2005. Northern Leopard Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos (next page)

Leopard Frog

Brown-colored adult (Grant County)

Tadpole (Grant County)

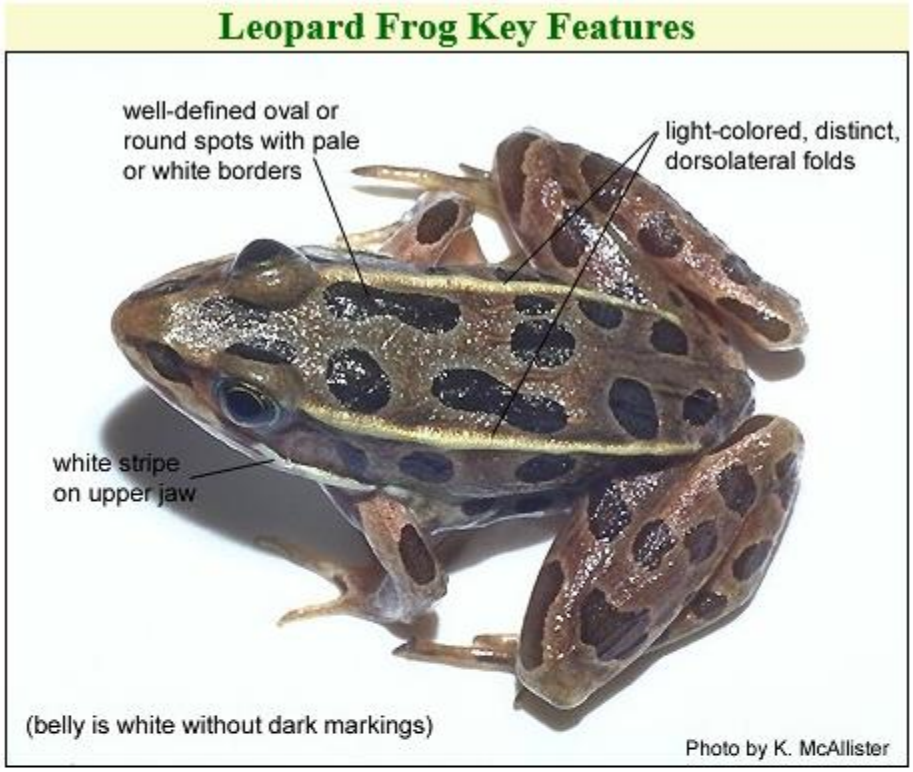
Northern Leopard Frog egg mass (Grant County)

Northern Leopard Frog egg mass (Grant County)

Habitat (Grant County)

Habitat (Grant County)

Key Features



Adult (Grant County

Green colored adult (Grant County)

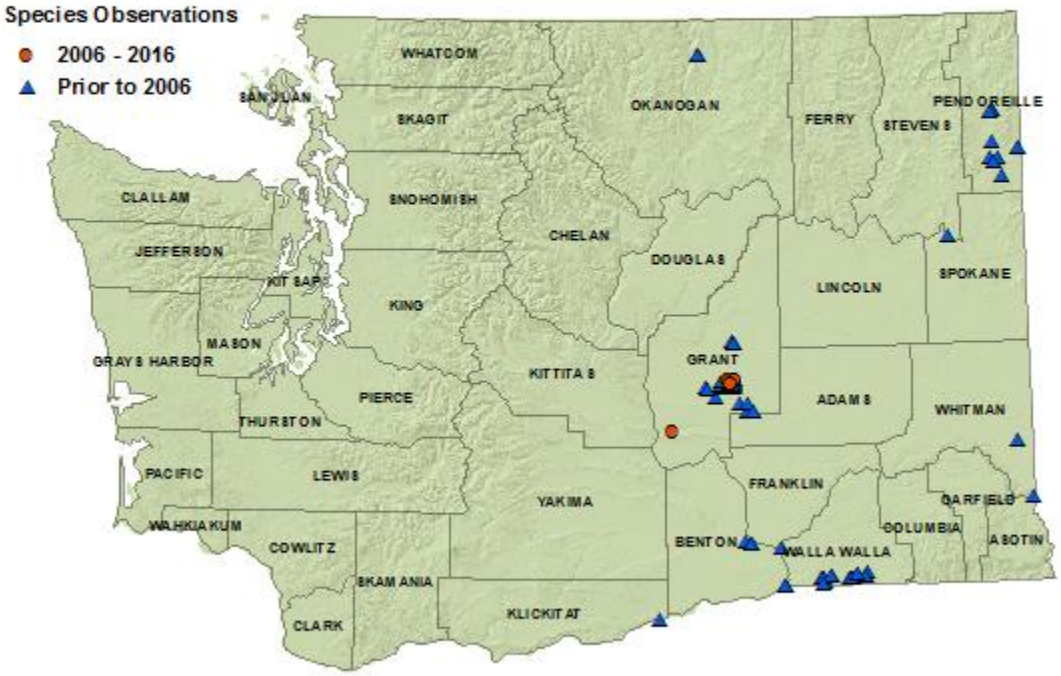
Underside of adult (Grant County)

Leopard Frog egg mass

Spotted Frog egg mass

Distribution Map

Northern Leopard Frog - Known Distribution



Northern Red-legged Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Northern Red-legged Frog

Taxon, Status, and Rank

Species	*Rana aurora*	Baird and Girard, 1852
Family	Ranidae (True Frogs)	
Status	none	
State Rank	S4	
Global Rank	G4	

General Description

This is a medium-sized frog with a slender body, smooth skin, distinct dorsolateral folds, and an eye mask. Females can reach 106 mm snout-vent length and males 82 mm snout-vent length but in Washington females rarely exceed 90 mm and males rarely exceed 70 mm. The dorsal color is tan, brown or olive-brown with varying amounts of black spotting and speckling. The undersides of the legs and margins of the abdomen are brick to orange-red; a gray wash may also be present. A distinct, contrastingly mottled, patch of black and cream to greenish-yellow coloration is present at the juncture between body and legs on the side (the groin). The legs are long and webbing on the toes does not extend past the first joint on the longest toe. Juveniles resemble adults but may not have the red pigment on undersurfaces. Mature males have gray swollen pads, called nuptial pads, on the thumbs.

Larvae-The tadpole has an oval body with dorsal eyes. The tube for waste elimination (vent) is just right of the midline at the tail base, and the tube for moving respiratory water out of the body (spiracle) is on the upper middle left side. The dorsal fin terminates on the body at, or anterior to, the spiracle. The tail tip is pointed and the dorsal fin is at least as high as the height of the tail musculature. At hatching, the tadpoles are dark brown but appear black in most light. They have long tails and short gills. As the larvae grow, the gills become concealed, the body color and belly lighten and metallic flecks appear. In larger tadpoles, the ventral abdomen is often pinkish or yellowish and brassy flecks are visible on the sides. Tadpoles grow to 50 to 75 mm total length before metamorphosis.

Eggs –Egg masses are globular with jelly that is soft and pliable to the touch. Roughly the size of a grapefruit, they are attached to vegetation 15 cm or more below the water surface. Newly laid eggs appear black on top and white on the bottom. As the embryos develop, the jelly becomes looser and the egg mass tends to break free of its attachment, often flattening out and floating to the surface. Newly hatched tadpoles disperse from the egg mass soon after hatching.

Voice –The advertisement call is a weak, stuttering set of guttural notes (4-7) given on one pitch "uh-uh-uh-uh." This call, produced primarily underwater, requires one to be close to the calling male to hear it. A chorus sounds like soft "clucking." Individual males also produce infrequent low volume calls, "chuckles," from terrestrial sites during the active season. The release call is "chuckling" accompanied by pulsing of the body. When grabbed by certain predators, such as Common Garter Snakes, Northern Red-legged Frogs release a loud and startling "scream."

See Photos Page.

Identification Tips

Frogs - The presence of dorsolateral folds distinguishes all native True Frogs (ranid species) from other anurans in Washington State. All native True Frogs in western Washington are brownish colored frogs that are similar in general appearance. Cascades Frogs are easily distinguished by the honey-yellow coloration on the abdomen and undersides of the legs. The following Northern Red-legged Frog traits distinguish them from Oregon and Columbia Spotted Frogs: 1) the groin is mottled with black and greenish yellow or cream-colored blotches, 2) distinct dorsolateral folds are present along the entire dorsal margins, 3) the eyes are oriented outward (laterally) so that only a portion of the pupil is visible when the frog is viewed from above, and 4) webbing is reduced between the toes so that the webbing on the longest toe does not extend past the first joint and the webbing is concave when the toes are pulled apart. The exotic American Bullfrog and exotic American Green Frog have a distinct fold (supratympanic fold) from the posterior edge of the eye, around the top of the external ear (tympanum) and ending at the shoulder; and typically have green coloration on the head.

Larvae- Pacific Treefrog tadpoles differ in having eyes along the outline of the head when viewed from above. Western Toad tadpoles are black dorsally and ventrally, have minimal if any metallic flecking, have flattened bodies, have a tail fin that does not extend onto the back, and have narrowly placed dorsal eyes on top of the head. Large American Bullfrog and American Green Frog tadpoles have distinct black spots on a khaki-colored body and the abdomen is an opaque yellow (intestines not visible) with no metallic pigment (Bullfrog) or with a coppery sheen (Green Frog). The tadpoles of the Northern Red-legged Frog, Oregon and Columbia Spotted frogs, and Cascades Frog are similar enough that distinguishing them in the field is challenging (see Recommended Field Guides and Keys on the Home Page).

Eggs – The Cascades Frog, Oregon Spotted Frog and Columbia Spotted Frog typically lay their eggs in communal clusters that consist of many (up to 60 or more) egg masses laid next to or on top of each other in shallow (less 15 cm) water and the eggs are not attached to sticks or vegetation. The Northwestern Salamander has a fist-sized globular egg mass that is solid to the touch, always attached to vegetation and the animal pole of the egg and the embryos are brown not black or dark brown.

See Key Features Page.

Phenology

Breeding in Thurston County, at 50-100 ft. (15-30 m) elevation, starts in late January or early February. Most eggs are laid within 2-3 weeks at each site, but a small percentage of populations, especially large ones, will continue to lay over a longer period of time. In southwestern British Columbia, eggs take approximately 3-5 weeks to hatch depending on when they are laid, water depth and water temperature. Oviposition appears to occur when surface water temperatures have reached 6° C. Most egg masses have hatched by late March in lowland areas. Tadpoles at low elevations start to transform in late June of their first year.

Range

In Washington, Northern Red-legged Frogs occur in the Pacific Coast, Puget Trough, North Cascades, West Cascades and East Cascades ecoregions. East of the Cascade crest, the only records from Kittitas and Yakima Counties are old museum specimen records. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List

Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Habitat and Habits

Northern Red-legged Frogs are found in lowland (mostly below 3000 ft. [914 m] in Washington) moist forested habitats with access to suitable breeding sites. This species can persist in areas of low-density development and landscapes managed for timber. Transformed Northern Red-legged Frogs are the most terrestrial of our native True Frogs. It is not unusual to find them in moist forested habitats far from water bodies. However, most individuals are found in the vicinity of standing or flowing water, even during the non-breeding terrestrial phase of the seasonal life cycle. Juveniles have been found in road puddles in disturbed open habitats that would not typically be considered suitable habitat for the species. Puddles and other temporary sources of standing water may be important features for dispersing individuals.

Breeding habitats include a variety of still-water bodies that generally persist until at least July at low elevations, later at high elevations. Vegetation suitable for egg mass attachment must typically also be present. However, Northern Red-legged Frogs can sometimes lay eggs in mud puddles with no attachment brace but this pattern is infrequent. Larvae are grazers and can strongly influence the distribution of algae (periphyton) in some still-water habitats. In water bodies with introduced warm-water fish, egg masses are uncommon or absent suggesting that Northern Red-legged Frogs avoid these water bodies for egg laying.

Experimental studies have revealed that exotic warm-water fishes can interact with bullfrogs and other aquatic fauna in a manner that produces negative effects on Northern Red-legged Frogs. Overall, however, habitat structure and the presence of exotic fishes appear to be more important in determining the overall distribution and abundance of Northern Red-legged Frogs than simply the presence of American Bullfrogs.

The few data obtained on overwintering for Northern Red-legged Frogs in the Puget Lowlands of Washington have revealed that the species may overwinter in terrestrial habitat at least for part of the season. Overwintering data from the lower Columbia in Oregon indicate that frogs will shuttle between aquatic and terrestrial habitat depending on wintertime temperatures, moving into water when conditions are colder. Regardless of precise overwintering location, this species can remain active throughout the winter at low-elevation sites except when temperatures are near or below freezing. During periods of inactivity, Northern Red-legged Frogs have been found sheltering under or within sword fern fronds, the duff that accumulates below sword ferns, under woody debris and within stream banks.

Northern Red-legged Frogs can be active both day and night depending on temperature; during wet intervals, most activity takes place at night. They blend well into their surroundings and are difficult to detect unless they move. They are alert, fast frogs that will remain motionless when approached and then suddenly flee by leaping away with relatively long but evasive jumps.

State Status Comments

This is a common species that remains widespread throughout its historical habitat in western Washington. Declines in British Columbia, Oregon, and California cause concern. Breeding sites should be monitored regularly to make sure that populations are persisting even with substantial habitat loss across the Puget Trough; an area that covers roughly one-third of Northern Red Legged Frog range in Washington.

Inventory and Research Needs

Monitoring of populations is recommended, particularly in landscapes that are rapidly being urbanized as this species may be able to survive only in situations with intermediate levels of urbanization at best. Annual egg mass surveys to determine number of breeding females (one egg mass per adult female) is the most efficient method for monitoring populations of this species for long-term trend analyses. Early March is the best time to survey for egg masses of lowland populations.

Despite recent advances (see Current Research below), fully understanding the spatial scale at which this species operates both seasonal and inter-seasonally under different habitat conditions remains a significant knowledge gap in this species' biology. More research in this area, and addressing overwintering patterns, is especially needed.

Current or Recent Research in Washington

Seven master's theses addressing the Northern Red-legged Frog have been completely over the last 12 years. Theses have focused on habitat use patterns outside of the breeding site (Haggard 2000, Serra Shean 2002, Chan-McLeod 2003, Chan-McLeod and Wheeldon 2004, Schuett-Hames 2004), habitat partitioning where the species co-occurs with bullfrogs (Twedt 1993), the effects of invasive exotic plants on oviposition (Callison 2001), and evidence for endocrine disruptors (Bettaso and others 2002).

Current research using genetic data has resulted in a systematic revision of red-legged frogs (Shaffer et al. 2004) revealing that not only are Northern and California red-legged frogs valid species, but they are not closest relatives as previously thought. Apparently, Northern Red-legged Frogs are more closely related to Cascades Frogs than they are to California Red-legged Frogs. This has important implication to understanding the biology of Northern Red-legged Frogs and defining the status of the species within different states and provinces.

Threats and Management Concerns

Substantial recent declines have been documented for this species in other states. Reasons for the declines, other than habitat loss and alteration, have not been confirmed but have been attributed to impacts of introduced fishes, introduced Bullfrogs, hydrology, endocrine disruptors, nitrogen compounds, and toxicants. In some cases, as for UV radiation, experimental work found no mortality but negative sub-lethal effects may exist. Among the least studied threats, that is coupled with increased urbanization, is road mortality.

References

Adams **(**1999**)**, Adams et al. **(**2003), Beasley (2002), Belden and Blaustein (2002), Bettaso et al. (2002), Brown (1975), Calef (1973a, 1973b), Callison (2001), Chan-McLeod (2003), Chan-McLeod and Wheeldon 2004, Dickman (1968), Dunlap (1955), Gregory (1979), Haggard 2000, Hallock and Leonard (1996), Hayes and Hayes (2003), Hayes and Jennings (1986), Kiesecker and Blaustein (1997, 1998), Leonard et al. (1997), Licht (1969a, 1969b, 1971, 1974, 1986), Marco et al. (1999), Nebeker and Schuytema (2000), Nussbaum et al. (1983), Ovaska (1997), Pearl et al. (2004, 2005a, 2005b), Richter and Azous (1995, 2001), Ritson and Hayes (2000), Schuett-Hames (2004), Schuytema and Nebeker (1996, 1998, 1999), Serra Shean (2002), Storm (1960), and Twedt 1993.

Personal Communications: Marc Hayes, Tuesday Serra Shean, Joanne Schuett-Hames

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Hallock, L.A. and McAllister, K.R. 2009. Northern Red-legged Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

Photos and Key Features

Northern Red-legged Frog

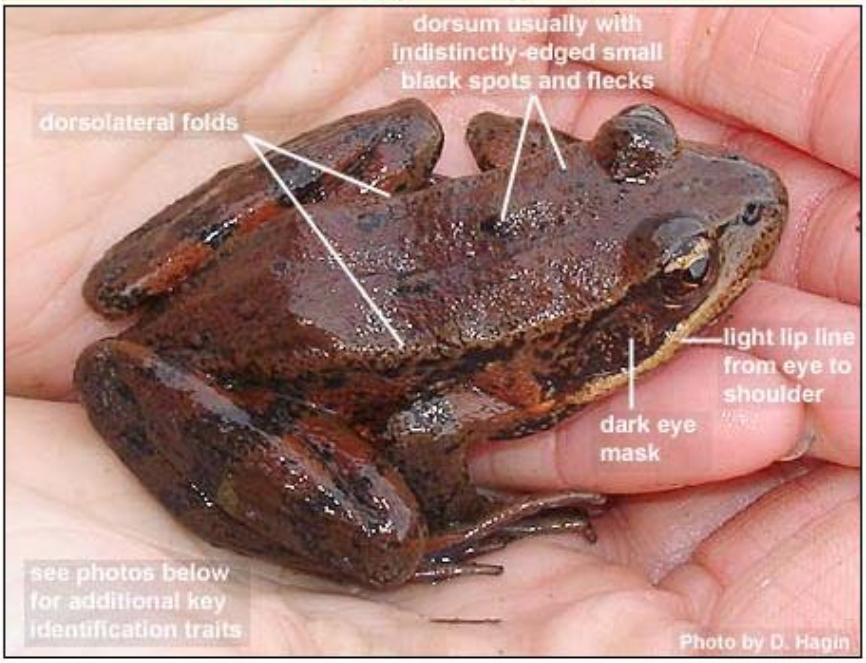
Adult (Snohomish County)

Tadpole (Thurston County)

Egg mass, early stage (Thurston County)

Egg mass, late stage

Northern Red-legged Frog Key Features



Adult (Thurston County)

Detail showing groin region (Clallam County)

Underside of adult female (Pierce County) being amplexed by male

Detail of head showing eye orientation (Skamania County)

Detail of foot showing webbing (Thurston County)

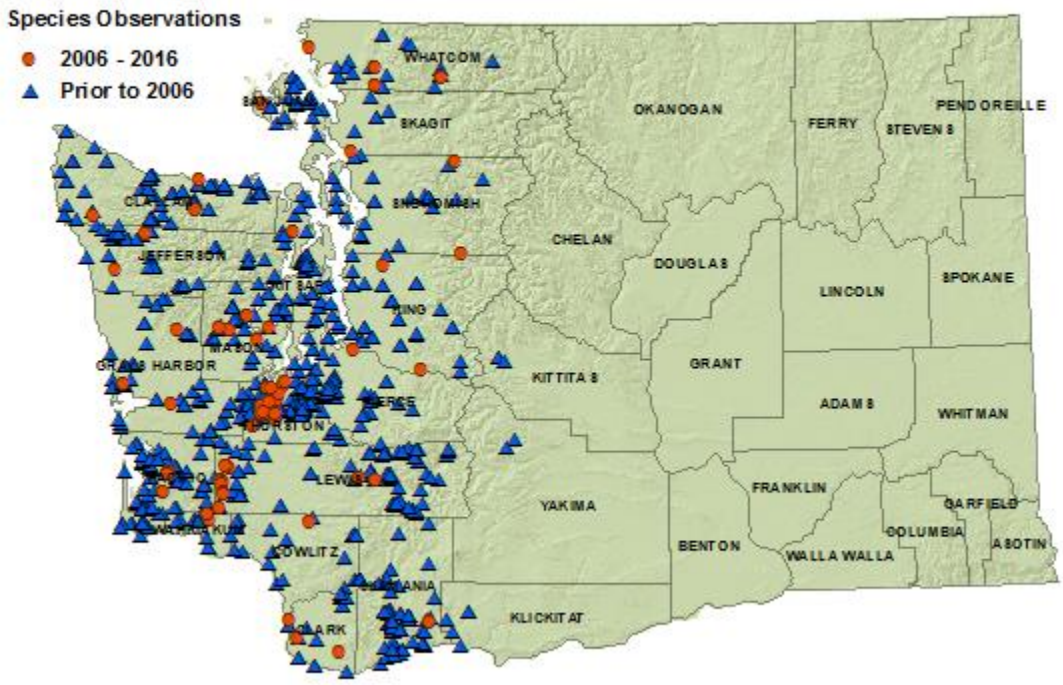
Close-up showing difference in eye color and pupil orientation of Oregon Spotted Frog (top) and Northern Red-legged Frog (Thurston County).

Ventral view showing difference in groin and leg coloration of Northern Red-legged Frog (top) and Oregon Spotted Frog. (Thurston County).

Side view showing difference in eye color and pupil orientation between Oregon Spotted Frog (top) and Northern Red-legged Frog.

Distribution Map

Northern Red-legged Frog - Known Distribution



Coastal Tailed Frog

List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog

Coastal Tailed Frog

Taxon, Status, and Rank

Species	*Ascaphus truei* Stejneger, 1899
Family	Ascaphidae or Leiopelmatidae (Tailed Frogs)
Status	State Monitor, USFWS Species of Concern
State Rank	S4
Global Rank	G4

General Description

This is a moderately small (37-50 mm snout-vent length), slender-bodied frog with rough skin. The head is relatively large, flattened and slightly broader than long. The snout tapers anterior to the eyes and is relatively short, and a pale triangle often exists between the eyes and the snout. The pupil is vertical. An eyestripe extends from the snout to the shoulder. The toes are slightly webbed and the outer two hind toes are flattened. The typically dark ground color is usually similar to the substrate of the habitat occupied. The males have a tail-like copulatory organ, tubercles on the palm and forearm and, during the breeding season, small dark pads on the sides of the abdomen.

The tadpole has a somewhat flattened body with dorsal eyes, a ventral suctorial oral disc (mouth) and a low fin that originates at the dorsal tail-body junction. The oral disc covers about 1/3 to 1/2 of the lower body surface. The tip of the tail is broadly rounded and typically has a white spot bordered by black. The spiracle is located on the midbelly (midventral) and the nostrils are located closer to the eyes than the snout.

The eggs are unpigmented, deposited in strings of 40-80 and attached to the undersides of rocks in cool flowing steams.

No vocalizations have been documented. Moreover, Coastal Tailed Frogs lack some of the structures used to make sounds (tongue and vocal sacs) found in other frogs.

See Photos Page.

Identification Tips

The tail appendage of the male is unique among anurans. Tailed frogs look similar to Pacific Treefrogs, but treefrogs have horizontal pupils, circular discs ("toe-pads") at the tips of their fingers and toes, rounded (rather than flattened) 4th and 5th toes on their hind feet, and typically lighter, bright ground coloration (often with greens or beiges). Great Basin Spadefoots have vertical pupils (the only other Washington anuran that does) but they are typically found only in arid habitats and have black spades on the under side of their rear feet. Tailed frogs have the only tadpole in Washington able to adhere to rocks in fast-flowing streams with a large sucker-like mouth. See Key Features Page.

Phenology

Present year-round in and near streams. Primarily night active, but tadpoles and frogs can also be observed during the day. Frogs are most active from April to October, but this varies by site and conditions. Mating takes place in the fall. Females are thought to store sperm until eggs are deposited in the summer. Eggs hatch in approximately six weeks. In Washington, the larval phase lasts two to five years depending on location and elevation. Metamorphosis usually takes place in late summer.

Range

In Washington, this species occurs in the Willapa Hills, the Black Hills, and the Cascade and Olympic Mountains. Elevations range from near sea level to 2075 m (6804 ft). Populations in the Blue Mountains were split into a new species – Rocky Mountain Tailed Frog (*Ascaphus montanus*). See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

They are primarily found in or associated with relatively cold, clear, rocky steams in mature forests. All life stages are adapted for life in fast flowing streams. The male's "tail" is used for internal fertilization to prevent sperm from being washed away. Eggs are attached to the undersides of rocks to keep them in place. The tadpoles have a large ventral suctorial mouth that allows them to feed and move in high-energy streams without loosing contact and unintentionally drifting.

State Status Comments

Endemic to the Pacific Northwest, the Coastal Tailed Frog is a Forests and Fish Agreement (Ffr) target species, one of seven stream-associated amphibians targeted for study specifically because they may incur some risk related to forestry practices. While still relatively common and widespread, considerable Ffr adaptive management funding is been directed at fully understanding the details of Coastal Tailed Frog biology and habitat use (see Current Research). In particular, effort has been devoted toward understanding and avoiding excessive stream temperature alterations and siltation, both potential effects of forestry practices that may be harmful.

Inventory and Research Needs

More research is needed on forestry practices and the best approaches to minimizing harm to tailed frogs and their habitat.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Endemic to the Pacific Northwest, the Coastal Tailed Frog is a Forests and Fish Agreement (FFr) target species, one of seven stream-associated amphibians targeted for study specifically because they may incur some risk related to forestry practices. While still relatively common and widespread, considerable Ffr adaptive management funding is been directed at fully understanding the details of Coastal Tailed Frog biology and habitat use (see Current Research). In particular, effort has been devoted toward understanding and avoiding excessive stream temperature alterations and siltation, both potential effects of forestry practices that may be harmful.

Inventory and Research Needs

More research is needed on forestry practices and the best approaches to minimizing harm to tailed frogs and their habitat.

Threats and Management Concerns

This species is vulnerable to management practices that alter the riparian or aquatic zones of streams, especially those that change the moisture regime, increase stream temperature, increase sediment load, reduce woody debris input and change stream bank integrity. Protection of the upper reaches of streams is particularly important for this species.

Current Research

The Cooperative Monitoring Evaluation and Research (CMER) Committee, the Adaptive Management arm of Ffr, has provided funding to the of Washington Department of Fish and Wildlife Habitat Program (Olympia, Principal Investigator, Marc Hayes) to be the lead agency for a multi-stakeholder group (i.e., major and minor private landowners, state and federal agencies, tribes, and an environmental caucus) project developing the Type N Buffer Treatment Effectiveness Study. This is a manipulative study that will compare alternative buffer treatments in non-fishbearing (Type N) headwater streams. Among those treatments is the prescription now applied to headwater streams in Ffr timber-managed landscapes. The design includes both pre-harvest sampling and post-harvest sampling that will occur at intervals over a harvest rotation. Stream-associated amphibians, especially Coastal Tailed Frog (Ascaphus truei), are focal elements of the study design, and will be measured as response variables. The study is intended to inform policy regarding buffer prescriptions on headwater streams.

References

Corn and Bury (1989), McDiarmid and Altig (1999), Nielson et al. (2001), Nussbaum et al. (1983), Stebbins (1985), Welsh (1990), Zug et al. (2001).

Personal communications: M. Hayes

Hallock, L.A. and McAllister, K.R. 2005. Coastal Tailed Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Adult female (Pierce County)

Adult male (Pacific County)

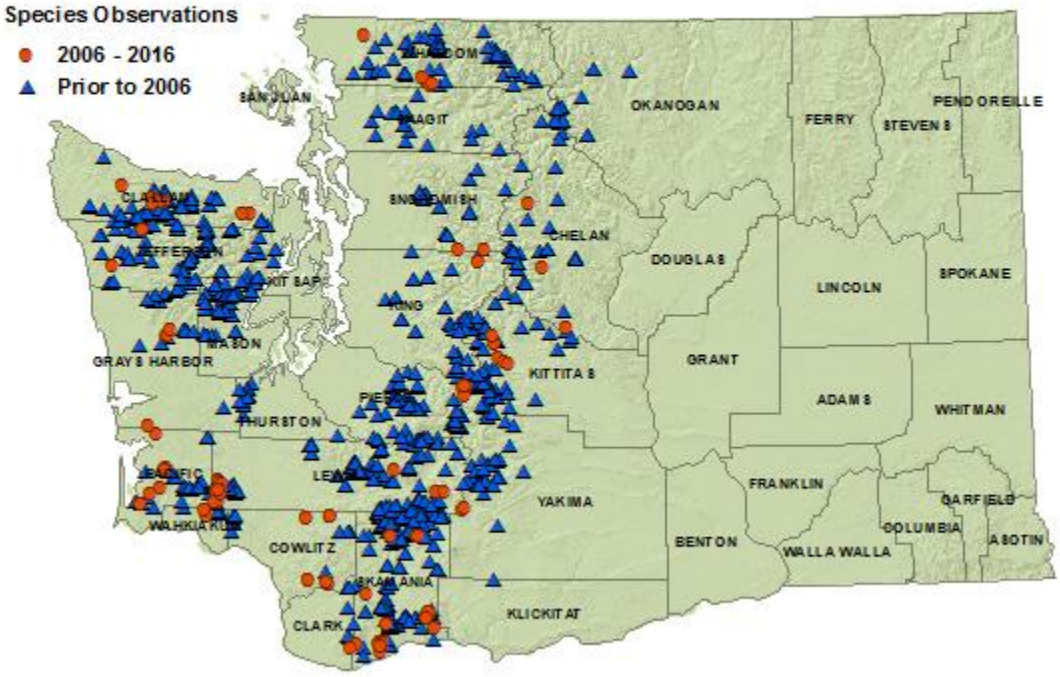
Key Features

Adult male (Pacific County)

Ventral view of tadpole

Distribution Map

Coastal Tailed Frog - Known Distribution



Rocky Mountain Tailed Frog

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Rocky Mountain Tailed Frog

Contents:		Links:
Taxon, Status, and Ranks	Habitat	Photos
General Description	State Status Comments	
Identification Tips	Inventory & Research Needs	Key Features
Phenology	Threats & Mgmt Concerns	
Range	References	Distribution Map

Taxon, Status, and Rank

Species	*Ascaphus montanus* Mittleman & Myers, 1949
Family	Ascaphidae or Leiopelmatidae (Tailed Frogs)
Status	State Candidate Species, Federal Species of Concern
State Rank	S2?
Global Rank	G4

General Description

This is a moderately small (37-50 mm snout-vent length), slender-bodied frog with rough skin. The head is relatively large, flattened and slightly broader than it is long. The snout tapers anterior to the eyes and is relatively short. The pupil is vertical. An eyestripe extends from the snout to the shoulder. The toes are slightly webbed and the outer two hind toes are flattened. The dorsal color is usually similar to the substrate of the habitat occupied. The males have a tail-like copulatory organ, tubercles on the palm and forearm and, during the breeding season, small dark pads on the sides of the abdomen.

The tadpole has a somewhat flattened body with dorsal eyes, a ventral suctorial oral disc (mouth) and a low fin that originates at the dorsal tail-body junction. The oral disc covers about 1/3 to _ of the lower body surface. The tip of the tail is broadly rounded and typically has a white spot bordered by black. The spiracle is located on mid-belly (midventral) and the nostrils are located closer to the eyes than the snout.

The eggs are unpigmented, deposited in strings of 40-80 eggs and attached to the undersides of rocks in cool flowing steams.

No vocalizations have been documented. Moreover, Rocky Mountain Tailed Frogs lack some of the structures used to make sounds (tongue and vocal sacs) found in other frogs.

See Photos Page.

Identification Tips

The tail appendage of the male is unique among anurans. Rocky Mountain Tailed Frogs look similar to Pacific Treefrogs, but treefrogs have horizontal pupils, circular discs ("toe-pads") at the tips of their fingers and toes, rounded (rather than flattened) 4th and 5th toes on their hind feet, and typically lighter, brighter ground coloration (often light browns and greens). Great Basin Spadefoots have vertical pupils (the only other Washington anuran that does) but they are typically found only in arid habitats and have black spades on the under side of their rear feet. Tailed frogs (both Coastal and Rocky Mountain taxa) have the only tadpoles in Washington able to adhere to rocks in fast-flowing streams with a large sucker-like mouth. See Key Features Page.

Phenology

Present year-round in and near perennial streams. Primarily night active, but tadpoles and frogs can also be observed during the day. Frogs are most active from April to October, but this varies by site and conditions. Mating takes place in the fall. Females are thought to store sperm until eggs are deposited in the summer. Eggs hatch in approximately six weeks. In Washington populations of the Rocky Mountain Tailed Frog, the larval phase appears to last three years. Metamorphosis usually takes place in late summer.

Range

In Washington, populations are found only in the Blue Mountains. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

They are restricted to perennial streams found in or associated with cold, clear, rocky streams in mature forests. All life stages are adapted for life in fast-flowing streams. The male's "tail" is used for internal fertilization, which prevents sperm from being washed away. Eggs are attached to the undersides of rocks to keep them in place. The tadpoles have a large ventral suctorial mouth that allows them to feed and move in high-energy streams without loosing contact and unintentionally drifting.

State Status Comments

The Rocky Mountain Tailed Frog (*Ascaphus montanus*) was split from the Coastal Tailed Frog (*Ascaphus truei*) based on genetic differences. Lack of recent survey information has prevented an unambiguous determination of the Natural Heritage state rank. Based on its small range in Washington, the state rank of the species will most likely be S2 unless the species proves to be common or abundant where it occurs.

Inventory and Research Needs

Inventory is needed in the Blue Mountains. The Washington Department of Fish and Wildlife Herp database contains only 9 locations for this species, only two of which are reports from the last 20 years. The following are drainages where Rocky Mountain Tailed Frogs have been found in Washington with the most recent observation year in parentheses: George Creek, Asotin County (1958); Wenatchee Creek, Garfield County (1959); and each of the North (2001) and Wolf (1997) Forks of the Touchet River, Columbia County.

Research is needed on the long-term consequences of land management practices (forestry practices, livestock grazing) on the Washington populations of the Rocky Mountain Tailed Frog.

Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Threats and Management Concerns

This species is vulnerable to management practices that alter the riparian or aquatic zones of streams, especially those that change the moisture regime, increase stream temperature, increase sediment load, reduce woody debris input and change stream bank integrity. Protection of headwater streams is particularly important for this species.

The Rocky Mountain Tailed Frog is one of the seven Forests and Fish Agreement (FFR) target species, but less concern for this species has been voiced in the FFR community because much of the known range lies on federal lands, and relatively little of the known range is under FFR jurisdiction. However, some of the area of the known range also represent livestock rangeland, and livestock impacts, elsewhere well known to influence riparian systems, are currently not being paid attention to as potentially of significance to this species.

References

Bull and Carter (1996), Corn and Bury (1989), McDiarmid and Altig (1999), Nielson et al. (2001), Nussbaum et al. (1983), Stebbins (1985), Welsh (1990), Zug et al. (2001).

Personal communications: M. Hayes

Hallock, L.A. and McAllister, K.R. 2005. Rocky Mountain Tailed Frog. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Rocky Mountain Tailed Frog

For similar adult and larval photos, refer to Coastal Tailed Frog.

Key Features

Rocky Mountain Tailed Frog Key Features

For similar key features, refer to Coastal Tailed Frog.

Distribution Map

Rocky Mountain Tailed Frog - Known Distribution

Painted Turtle

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent
Amphibians List
Reptiles List
Amphibians:
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Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Painted Turtle

Taxon, Status, and Rank

Species	*Chrysemys picta* (Schneider, 1783)
Family	Emydidae (Box and Water Turtles)
Status	None
State Rank	S5
Global Rank	G5

General Description

A medium-sized aquatic turtle with a dark colored upper carapace (upper shell); bright red markings on the plastron (lower shell) and marginal carapace; and yellow lines on the head, legs and tail. Adults range in size from 6 to 25 cm (2 1/2 - 10 in.).

The carapace is olive, dark brown or black; it may have yellow and red borders on the seams and has prominent red bars or spots on the undersides of the marginals (edge scales). Except in old individuals, the carapace is relatively smooth. No dorsal keel exists except a weak one in hatchlings. The posterior marginals are not serrated. The plastron is stunningly red. A large, lobed, yellow and black blotch exists in the center of the plastron, with the lobes following the plastral seams. The skin is black to olive with yellow stripes on the head, neck, legs, and tail. With age, the color of the plastron fades and the carapace becomes pitted and worn. Males are smaller; have elongate front claws on the three middle digits (i.e., digits 2, 3, and 4) that are used for courtship; and have a long thick tail with the opening to the vent located posterior to the margin of the carapace when the tail is extended. Juveniles resemble the adults but with brighter coloration. See Photos Page.

Identification Tips

The Painted Turtle is easily distinguished from all other turtle species in Washington by the bright red or orange red markings on the plastron and undersides of the marginal scales of the carapace. These colorful markings are usually visible on basking turtles. See Key Features Page.

Phenology

This species is active as soon as water temperatures warm and the sun's rays create conditions suitable for basking, usually in late March or early April. Female turtles migrate from water bodies to terrestrial egg laying sites in late spring and early summer. Turtles in Skamania County lay eggs in late May and June. In eastern Washington, egg laying takes place in June –July. Incubation time is not known from Washington populations but the literature indicates 72 – 104 days from other areas in the Northwest. Turtles hatch in late summer or early fall and may migrate to breeding ponds or overwinter in the nest. Adults overwinter in bottom sediments or within the flooded banks of water bodies.

Range

Painted Turtles have been documented in all Washington ecoregions but most occurrences are at the lower elevations of eastern Washington, the Columbia Gorge and the Puget Trough. The species was likely introduced to the Puget Sound region as the earliest records (Marysville – 1958, Bigelow Lake – 1960, and Ravenna Park – 1967) are relatively recent and associated with urban and residential areas. Today, the species is well-distributed throughout the Puget Sound region. Elsewhere in Washington, Painted Turtles are likely native. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

This species is primarily aquatic, straying from water only to lay eggs, for dispersal and at times of drought. Aquatic habitats include lakes, ponds, wetlands, and slow flowing areas of rivers and creeks. They prefer habitats that have muddy sediments and lots of aquatic vegetation. Terrestrial habitats include shrub-steppe, grassland and forest. The wet, cool, mesic forests of western Washington are not suitable habitat. Painted Turtles are diurnal. They shelter under water at night and start the day by basking on rocks, logs and the shore. Basking also takes place throughout the day. They tend to be common where they occur and are easily spotted by searching basking sites. They are wary of people and will quickly slip into the water when approached. Often, individuals return to the surface swimming vertically with their heads protruding out of the water.

Research has shown that juvenile Painted Turtles, when taken by Largemouth Bass (*Micropterus salmoides*), will thrash and claw, often eliciting their release by the predator. This behavior is not exhibited by all turtle species but appears to give survival advantages to the Painted Turtle where predatory fish large enough to engulf juveniles, like Largemouth Bass, are present.

State Status Comments

This species appears to be common in Washington and no specific conservation actions seem to be needed at this time. Identifying where native populations actually occur would be useful.

Inventory and Research Needs

Understanding the actual distribution and status of native versus exotic populations of Painted Turtles in Washington is needed to determine whether any problems may exist. This issue can only be effectively addressed with genetic data.

Observations of turtles from areas not indicated on the map can be submitted to Lori Salzer at Washington Department of Fish and Wildlife at salzeljs@dfw.wa.gov.

Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Threats and Management Concerns

The major threats are to females killed by vehicles while moving to and from nesting sites and from predation on nests and nesting females. Well-traveled roads located between terrestrial nesting sites and aquatic active-season sites have the potential to fragment turtle habitat in a manner that could extirpate local populations. No studies in Washington State have addressed this issue.

Sheen and Gibbs (2004) found that turtle populations were male dominated in high road density areas (73% for painted turtles and 95% for snapping turtles) but were less so in low road density areas (54% for painted turtles and 74% for snapping turtles). This suggests that females are being killed by vehicles at higher rates than males, most likely during nesting migrations. This may be a significant threat to turtle populations near roads because these populations will be skewed towards males and will have lower recruitment. Because of the long lifespan of turtles, it may take decades before it becomes apparent that a population is in decline.

Current Research

Fred Janzen, Ricky Spencer, and Gary Paukstis are studying predation rates and other aspects of Painted Turtle reproduction in the Columbia River Gorge of Skamania County.

References

Britson and Gutzke (1993), Ernst and Barbour (1989), Lindeman (1988), Nussbaum et al. (1983), Sheen and Gibbs (2004), Stebbins 2003

Personal communications: F. Janzen

Hallock, L.A. and McAllister, K.R. 2005. Painted Turtle. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Painted Turtle

Adult (Thurston County)

Juvenile (Okanogan County)

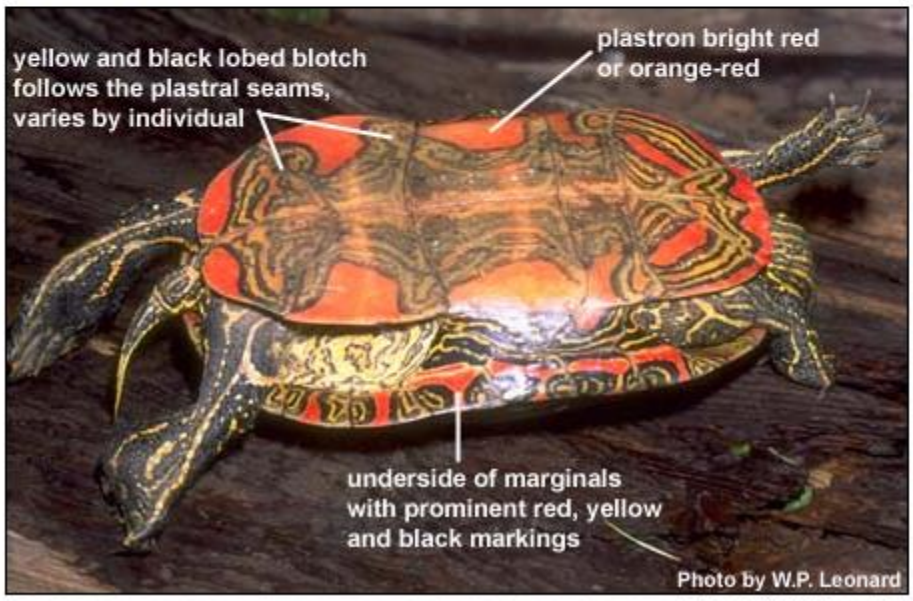
Juvenile plastron (Okanogan County)

Habitat (Pend Oreille County)

Basking adult (Clark County)

Key Features

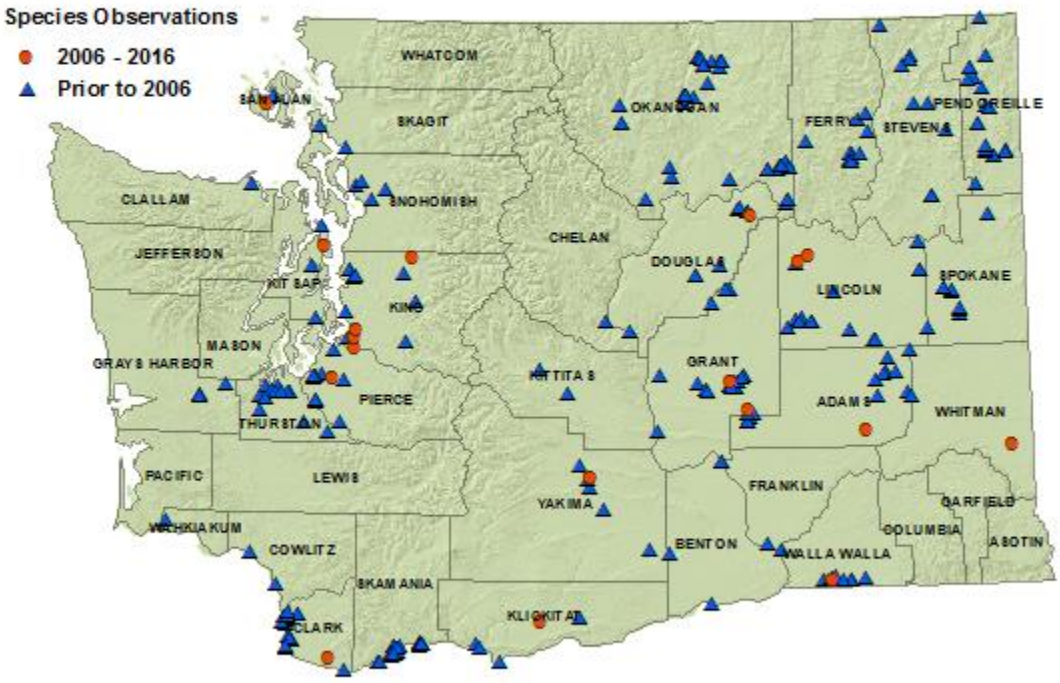
Juvenile (Okanogan County)



Adult plastron (Thurston County)

Distribution Map

Painted Turtle - Known Distribution



Pond Slider

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Pond Slider

Taxon, Status, and Rank

Species	*Trachemys scripta* (Schoepff, 1792)
Family	Emydidae (Pond Turtles)
Status	Exotic
State Rank	SE
Global Rank	G5

General Description

This is a medium-sized aquatic turtle with yellow streaks on a dark upper shell (carapace) and a bright red blotch on each side of the head. Adults range in size from 8.9 to 36.8 cm (3 1/2 – 14 1/2 in.). The carapace has wrinkles running the length of the shell. The head and limbs are striped with yellow. The posterior edge of the carapace (marginals) is serrated. The lower shell (plastron) is yellow with symmetrical dark blotches sometimes called "eye spots." Juveniles have a bright green carapace with yellow streaks and the plastron has many dark "eye spots." Males have elongate front claws. As individuals age, the yellow and red markings fade and some adult turtles, especially males, will lack these markings becoming essentially dark all over. See Photos Page.

Identification Tips

Another common name for the Pond Slider is the "Red-eared Slider". When present, the red blotch on each side of the head can be used to distinguish this turtle from all other turtles. Old turtles, especially males, become very dark (melanistic) and this may obscure the red markings and yellow stripes.

The Painted Turtle, a Washington native, has bright red or orange-red markings on the plastron and undersides of the marginal scales of the carapace. The head, however, lacks any red markings.

The Western Pond Turtle, a rare Washington native, is fairly plain in comparison to the Pond Slider and Painted Turtle. The carapace is relatively smooth; olive, dark brown, reddish or black in color; and usually has a pattern of lighter markings (flecks or spots) radiating from the center of the shields (scutes). The plastron is yellow with varying amounts of brown depending on the individual and age. Coloration darkens with age.

Many species of released and escaped pet turtles show up regularly and some can be easily confused with our two native turtles and the Pond Slider. Box turtles, Snapping Turtles, Mud Turtles, as well as Asian and South American turtles have been found in Washington. Photos of turtles can be submitted to lisa.hallock@dfw.wa.gov for identification. Photos should include a view of the turtle from the top, bottom and side with care being taken to show features of the head.

See Key Features Page.

Phenology

Little information has been documented on Pond Sliders in Washington. In its native range, this species is active as soon as water temperatures warm and the sun's rays create conditions suitable for basking. In western Washington activity probably starts in late March or early April. Female turtles migrate from water bodies to terrestrial egg laying sites in early summer. Incubation takes about 65 to 80 days. Turtles hatch in late summer or early fall. Adults likely overwinter in bottom sediments or within the flooded banks of water bodies.

Range

This species is native to the eastern United States from northwestern Indiana south to Georgia and west to Texas and Oklahoma. Hatchling Pond Sliders were sold in pet stores all over the United States until 1975 when it became illegal to sell small (less than 4 in.) aquatic turtles due to the ease of contracting salmonella though casual contact with turtles. The Pond Sliders seen today, outside of their native range, are release pets or, possibly, descend from released pets. Successful reproduction of Pond Sliders in Washington has not been documented. The majority of Pond Sliders reported in Washington are from urban areas in the Puget Sound and lower Columbia Gorge area. The species is more common than the Distribution Map indicates.

See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

This species is primarily aquatic, straying from water only to lay eggs, for dispersal and at times of drought. Still-water aquatic habitats are preferred and include lakes, ponds, wetlands and slow flowing areas of rivers and creeks. They prefer habitats that have muddy sediments and lots of aquatic vegetation. Sliders are diurnal. They spend a great deal of the day basking on rocks, logs and the shore. They are called sliders because they slide from terrestrial basking sites into the water when approached.

Interestingly, these turtles have been observed swimming and foraging in near-shore marine waters in Puget Sound. Sea weed growing on the shell of one individual suggests the turtle spent a great deal of time in salt water.

State Status Comments

This is a common exotic species. Notable die-offs, involving many animals at the same time, have been reported at a number of Washington Lakes including Steel Lake and Lake Washington (King County), and Wapato Lake (Pierce County). Causes of the die-offs are poorly understood though animals that were examined were in generally poor condition. The species may be poorly suited for Washington's climate. It would be useful to identify where populations occur and information on reproduction and survival.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

This is a common exotic species. Notable die-offs, involving many animals at the same time, have been reported at a number of Washington Lakes including Steel Lake and Lake Washington (King County), and Wapato Lake (Pierce County). Causes of the die-offs are poorly understood though animals that were examined were in generally poor condition. The species may be poorly suited for Washington's climate. It would be useful to identify where populations occur and information on reproduction and survival.

Inventory and Research Needs

Understanding the actual distribution and status of exotic populations in Washington would help determine whether any issues may exist. The question also remains as to how many established breeding populations actually occur in the state. Although Pond Sliders are sometimes observed digging holes and depositing eggs, successful hatching in Washington has never been documented. In addition, virtually all sightings of Pond Sliders involve adults. Additional work to understand the reproductive capability and population dynamics in Washington would aid decisions about management.

All observations are of interest and can be submitted to Lori Salzer at Washington Department of Fish and Wildlife at salzeljs@dfw.wa.gov. Of special interest are any observations of nesting females or hatchlings. Photographs are required to confirm identification.

Current or Recent Research in Washington

None.

Threats and Management Concerns

This is an exotic species. At this time, however, there is no recommendation to remove Pond Sliders from Washington water bodies.

General concerns exist about the introduction of non-native turtles to water bodies in Washington. Specifically, the introduced turtles may carry diseases and they compete with native turtles for resources such as food and basking sites.

It is common for pet turtles to escape. People assume a turtle is too slow to escape and place it in the yard to enjoy a sunny day. With the right motivation, however, a normally sluggish turtle will actually move fast enough to quickly disappear from view. We receive many calls from people who find turtles in urban and suburban communities. In these cases, the first action we recommend is to post a sign in the neighborhood. Likely the owner lives close by and will be searching for the turtle. We do not recommend that the turtles be allowed to go free. In addition to the above mentioned concerns, weather conditions are not suitable in western Washington for most pet store turtles and the turtles will eventually perish.

References

Harding, J.H. and J.A. Holman (1990); Stebbins (2003)

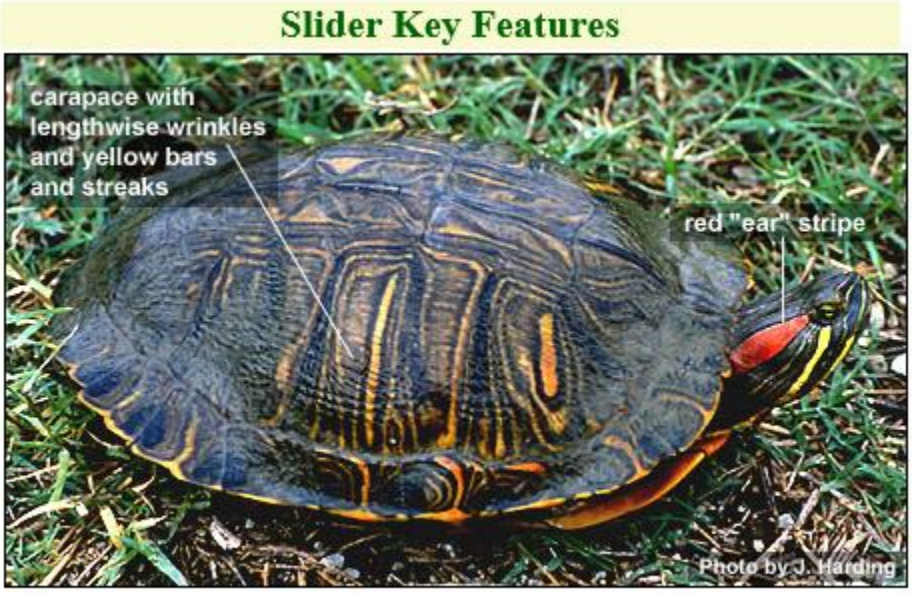
Hallock, L.A. and McAllister, K.R. 2009. Pond Slider. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

Photos

Adult (Tennessee)

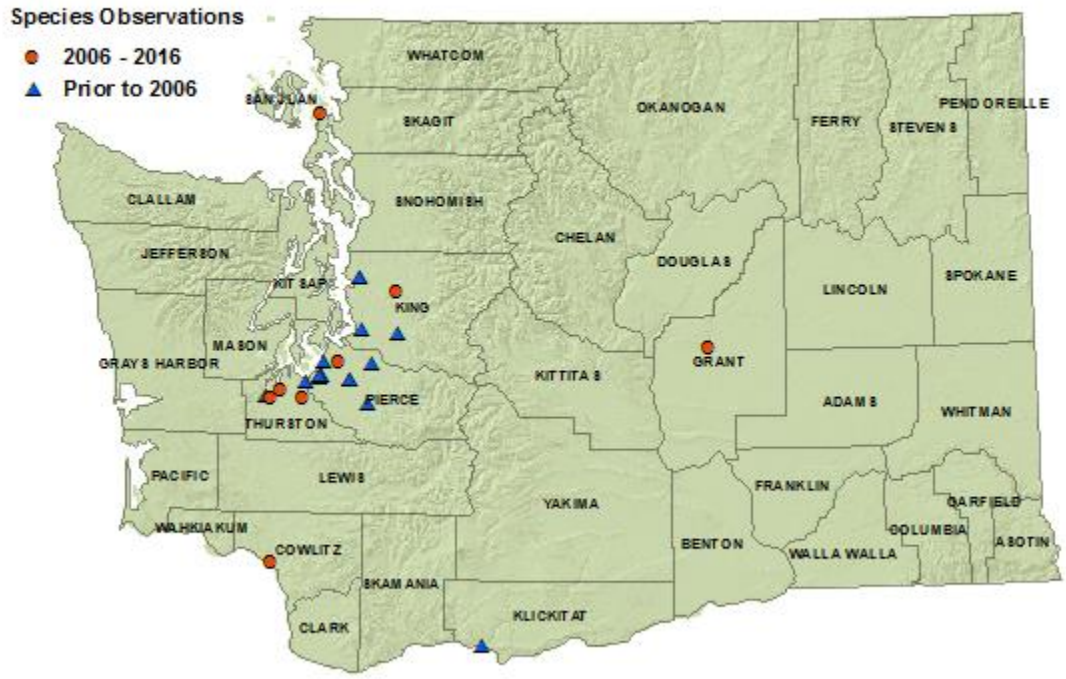
Key Features



Adult (Tennessee)

Distribution Map

Slider - Known Distribution



Western Pond Turtle

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic
List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Western Pond Turtle

Taxon, Status, and Rank

Species	*Actinemys marmorata* Baird and Girard 1852 (= *Clemmys marmorata*, *Emys marmorata*)
Family	Emydidae (Box and Water Turtles)
Status	State Endangered Federal Species of Concern
State Rank	S1
Global Rank	G3G4

General Description

A medium sized, plain, aquatic turtle. Adults range in size from 9 to 19 cm carapace length. The carapace is relatively smooth, olive, dark brown, reddish or black, usually with a pattern of lighter markings (flecks or spots) radiating from the center of the shields (scutes). The plastron is yellow with varying amounts of brown depending on the individual and age. The body ground color can be dark brown, light brown or black often with light or dark spotting. Throat, in females, often yellow speckled with black or, in males, plain off-white. Coloration darkens with age. Juveniles tend to have lighter coloration and bolder markings on the shell. See Photos Page.

Identification Tips

Only two native turtle species occur in Washington. The Painted Turtle has a smooth olive-colored shell, yellow striping on the head and legs, and bright red markings on the plastron and underside of the carapace margins. In some, the red extends onto the edges and dorsal surface of the carapace. The most common introduced turtle, the Slider, has a wrinkled dark shell usually with dull yellow markings. The plastron is yellow with black blotches. The head and limbs are yellow striped and there is a bright red marking behind the eye. Many species of introduced, released and escaped pet turtles show up regularly, as do oddities, such as melanistic Sliders with no red marking behind the eye and yellow stripes so faded as to be barely visible when the turtle is in hand. See Key Features Page.

Phenology

Western Pond Turtles are active as soon as water temperatures are warm enough and basking is possible, usually in late March or early April. Adult activity continues until late September or October depending on weather conditions and location. A recent telemetry study of juvenile turtles found that some turtles were still active in December at a site in the Columbia River Gorge (Skamania Co.).

Range

Historically, pond turtles occurred in the Puget Trough Ecoregion and in the Columbia River Gorge (Western Cascades and Eastern Cascades Ecoregions). See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Western Pond Turtles utilize a variety of flowing and still water habitats in other parts of their range, but in Washington they are only known from ponds and lakes. This species is primarily aquatic, but strays from water to lay eggs, to disperse to new water bodies, to winter out-of-water (about half of Washington's turtles winter on land) and to aestivate during periods of drought. Pond turtles spend a great deal of time basking on logs and other supporting structures at the surface of ponds.

State Status Comments

There are only four populations in Washington. Two populations are natural and two were introduced by the Washington Department of Fish and Wildlife. The introduced populations (one in the Puget Trough, the other in the Columbia River Gorge) have captive-reared and released turtles that are intended to someday develop into functioning wild populations. All populations are vulnerable to factors that could cause their extirpation.

Inventory and Research Needs

Any sighting of the Western Pond Turtle should be reported to the Washington Department of Fish and Wildlife at 360-902-2515 or wildthing@dfw.wa.gov.

Threats and Management Concerns

The major threats to this species are 1) loss of hatchlings to bullfrogs, 2) alteration of important features of aquatic or terrestrial habitats, 3) loss of nests to human activities or predators, 4) disease and competition from introduced turtles, and 5) removal from the wild by humans.

Current Research

Wild hatchling Western Pond Turtles from the Columbia River Gorge were reared at the Woodland Park and Oregon Zoos in 2003 and 2004 as part of the recovery effort for this Washington State endangered species. The objective of the program is to reduce losses to introduced predators like bullfrogs and largemouth bass by raising the hatchlings to a size where they are too large to be eaten by most of these predators. The 136 head-started juvenile turtles were released at three sites in the Columbia Gorge in 2004. This brought the total number of head-start turtles released since 1991 to 246. In 2004, 32 females from the two Columbia Gorge populations were equipped with transmitters and monitored for nesting activity. Twenty-one of the females nested and produced 85 hatchlings. The hatchlings were collected in September and October and transported to the Woodland Park and Oregon zoos for rearing in the head-start program. Data collection for a four-year telemetry study of survival and habitat use by juvenile western pond turtles at Pierce NWR concluded in 2004. During the 2004 field season trapping effort, 345 western pond turtles were captured in the Columbia Gorge, including 297 previously head-started turtles. These recaptures, together with confirmed nesting by head-start females and visual resightings, indicate the program is succeeding in boosting juvenile recruitment to increase the populations. Bonneville Power Administration (BPA) funded approximately 60% of program activities in the Columbia River Gorge from October 2003 through September 2004. Submitted by David Anderson from the WDFW.

Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

References

Hays et al. (1999), Milner (1986)

Personal Communications: D. Anderson, S. Clark, J.A. Holman, J. Lewis

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Hallock, L.A. and McAllister, K.R. 2005. Western Pond Turtle. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Western Pond Turtle

Sub-adult (Skamania County)

Hatchling

Western Pond Turtle habitat (Skamania County)

Western Pond Turtle habitat (Klickitat County)

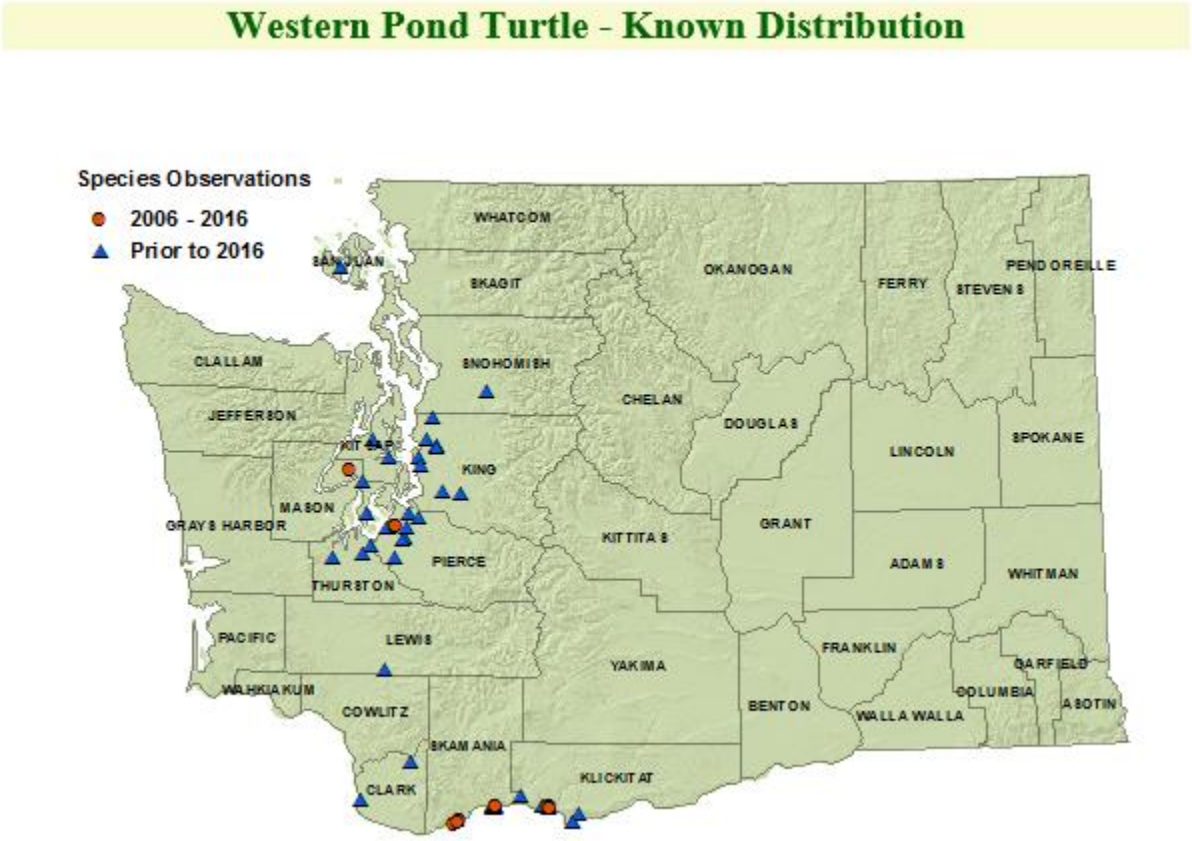
Key Features

Sub-adult (Skamania County)

Adult plastron

Typical markings on head

Distribution Map



Pygmy Short-horned Lizard

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog

Pygmy Short-horned Lizard

Taxon, Status, and Rank

Species	*Phrynosoma douglasii* (Bell, 1829)
Family	Phrynosomatidae (North American Spiny Lizards and allies)
Status	none
State Rank	S3
Global Rank	G5

General Description

This is a medium-sized lizard with a blunt snout, round flattened body, short legs and a short triangular tail. Maximum size is around 65 mm snout-vent length. Females are significantly larger than males. Spines or "horns" project from the back of the head and fringe-like spines occur on the sides. The dorsal pattern is mottled in white, gray, beige, tan, brown, black and sometimes yellow or orange. Dark blotches occur in transverse rows on the back. The underside is white, sometimes with a yellow or gray wash. Males have enlarged pores (femoral pores) on the midline of the underside of the thighs. Juveniles resemble adults. Overall, horned lizards are rather toad-like in appearance, earning them the Latin name Phrynosoma meaning "toad body," and the vernacular names "horny toad" or "horned toad." See Photos Page.

Identification Tips

No other lizard occurring in Washington is similar in appearance. See Key Features Page.

Phenology

Activity starts in late March in the Columbia Basin. Mating takes place soon after emergence in the spring. Young are born live approximately two months after mating. Pygmy short-horned lizards remain active until mid to late October.

Range

Pygmy short-horned lizards occur primarily in the Columbia Basin Ecoregion with some occurrences in the East Cascade and Okanogan ecoregions. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Pygmy Short-horned Lizards occur primarily in the shrub-steppe. They require soil conditions that allow them to burrow below the surface and substrate that is well-drained. Recent field research in Kittitas County found short-horned lizards to have a disproportionate preference for lithosol terrain. Females in the final month of gestation, however, tended to use loamy and ecotone terrains and also used this habitat for birth sites. Other findings of this study suggest populations may need a variety of substrate types to meet all their needs. In addition to these terrain types, Pygmy Short-horned Lizards in Washington are also known to occur in loamy terrain without lithosols, on vegetated sand dunes and even in some agricultural settings where patches of native habitat are present.

Pygmy Short-horned Lizards are active mid-day during spring and fall but in summer are inactive during the middle of the day when temperatures are at their maximum. Activity periods are generally in the morning and for a short time again in the evening starting around 4:30 PM. They are difficult to find because of their cryptic coloration. Abundance varies from site to site.

State Status Comments

The current rank is based on the number of populations reported in the last 20 years and the fact that in some areas this species is quite common. However, anecdotal reports of local declines continue to be voiced.

Inventory and Research Needs

Observation records are needed from areas without records and areas that have not been reported in the last 20 years. Of particular interest is the Okanogan Valley where no observations have been documented but where the species is believed to occur. Observations that suggest local declines or extirpation are also of interest. Observations can be submitted to the WDFW herp database by contacting Lori Salzer @ salzeljs@dfw.wa.gov.

Current or Recent Research in Washington

Megan Lahti recently completed her Master's Thesis at Central Washington University. Her research focused on the ecology of the Pygmy Short-horned Lizard in Kittitas County. She observed 112 lizards between April and October 2004 and radio-tracked 3 individuals. She found they were associated with habitats having a high proportion of bare ground and sparse shrub and grass cover, such as lithosol terrain. A diet analysis found that Pygmy Short-horned Lizards from her study areas were not ant specialists.

Waterville Elementary school children participate in a NatureMapping project called "Adopt-a-Farmer" that involves the children working with local farmers to collect information on the locations of Pygmy Short-horned Lizards in the Waterville area. Their observations are included on the distribution map.

Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Threats and Management Concerns

Habitat conversion for agriculture or other uses is believed to be the main threat to this species. Ants generally make up the majority of the diet with a variety of other insects completing the diet. Management activities that reduce insect abundance may cause local declines in this species.

References

Hallock (1998), Lahti (2005), Nussbaum et al. (1983), Sherbrooke (2003)

Personal communications: M. Lahti

Website: NatureMapping: http://www.fish.washington.edu/naturemapping/waterville/intro.html

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Hallock, L.A. and McAllister, K.R. 2005. Pygmy Short-horned Lizard. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos

Adult (Douglas County

Adult female (Grant County)

Adult on sand dune, evening basking (Franklin County)

Biscuit and swale habitat (Douglas County)

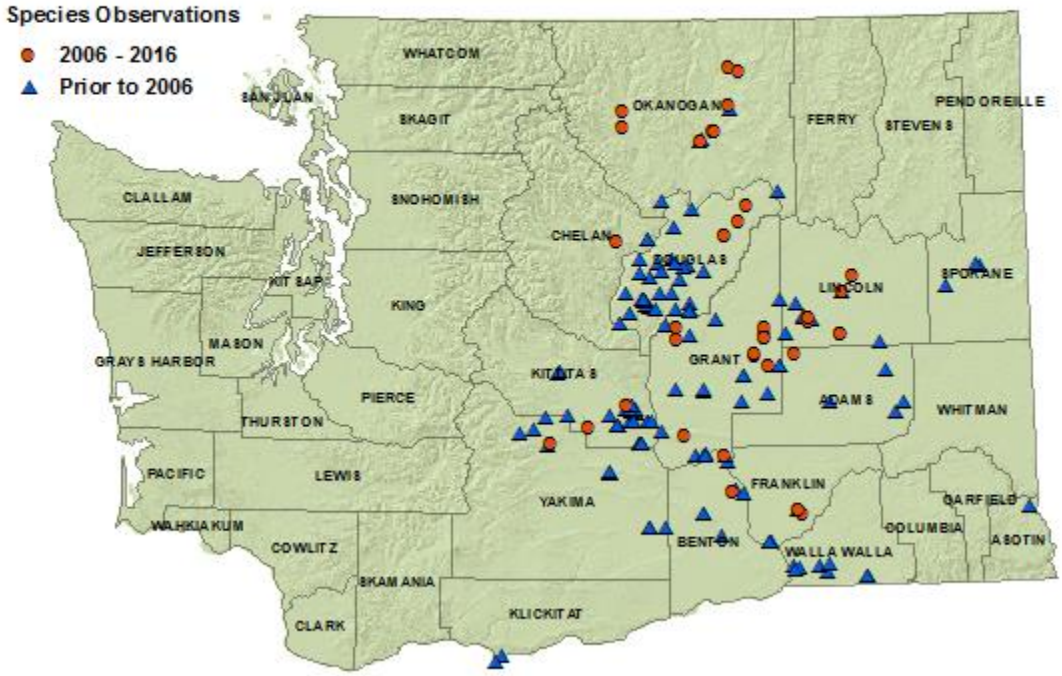
Key Features

Ventral view of a gravid female (Franklin County)

Ventral view of an adult female (Douglas County)

Distribution Map

Pygmy Short-horned Lizard - Known Distribution



Sagebrush Lizard

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Sagebrush Lizard

Taxon, Status, and Rank

Species	*Sceloporus graciosus* Baird and Girard
Family	Iguanidae (Iguanids)
Status	Federal Species of Concern
State Rank	S3
Global Rank	G5

General Description

This is a small (usually less than 60 mm snout-vent length) gray or brown lizard with a mid-dorsal stripe, two light colored dorsolateral stripes, and a series of dark chevron-shaped blotches or crossbars between the stripes. The belly is white. Typically the axilla (arm-pit) is orange or rust colored. On females, this coloration may extend onto the neck and sides of the body. Mature males have enlarged post anal scales, a swollen tail base, bright blue patches on the margins of the abdomen and blue mottling on the throat. Females may have some blue-tinged scales on the margin of the abdomen. Hatchlings (about 25 mm snout-vent length) and juveniles are similar in appearance to adults but do not have any blue pigmentation on the belly. See Photos Page.

Identification Tips

The Side-blotched Lizard is similar in size and appearance to the Sagebrush Lizard but has a gular fold, a black spot on the body behind the front forelimbs, and a mottled or spotted dorsal pattern. The Western Fence Lizard is similar in appearance but the adults are larger (> 60 cm snout-vent length), have large spiny dorsal scales, keeled yellow scales on the posterior surface of the thighs, and do not have orange or rust colored axilla. The entire throat of the mature male Fence Lizard is blue and the blue belly-patches are distinctly outlined in black. See Key Features Page.

Phenology

Sagebrush Lizards are active on warm, sunny days from early April into October. Eggs are laid in early summer. Hatchlings appear in early August. Over-wintering behavior has not been studied in Washington.

Range

In Washington, the historical range is the Columbia Plateau and Okanogan Ecoregions. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

In Washington, this gregarious lizard is primarily associated with sand dunes and other sandy habitats that support shrubs and have large areas of bare ground. Sagebrush Lizards bask in the morning and late afternoon. Typically, they can be seen on the ground at the edge of shrubs or other vegetation that provide cover from predators. When ground temperatures become hot, Sagebrush Lizards move into the low branches of shrubs or under vegetation. At night, on rainy days and on cool cloudy days they move underground or shelter under debris.

State Status Comments

The status is based on the patchy distribution in Washington, the small number of known occurrences, and the relatively narrow habitat requirements.

Inventory and Research Needs

Inventory of historical sites is needed in Walla Walla and Yakima counties. Sagebrush Lizard occurrences from areas that are not indicated on the distribution map should be reported to the Washington Department of Fish and Wildlife.

Threats and Management Concerns

Recent research in Oregon suggests that the Sagebrush Lizard is limited to habitats that have sandy soils. In Washington, all recently confirmed sites are associated with sand dunes or other sandy habitats. Any activities that alter these habitats, such as conversion to agriculture and/or activities that promote the invasion of cheat grass *(Bromus tectorum)*, are likely detrimental to Sagebrush Lizard populations.

Current Research

The Natural Heritage Program (L. Hallock) under a challenge-cost share contract from the Bureau of Land Management, has been surveying all the historical Sagebrush Lizard locations and conducting surveys at other sites in the Columbia Basin to determine the current distribution and status of this species. These surveys will continue in 2005.

References

Green et al. (2001), Nussbaum et al. (1983), Stebbins (1985), Storm and Leonard (1995).

Hallock, L.A. and McAllister, K.R. 2005. Sagebrush Lizard. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos (next page)

Sagebrush Lizard

Adult (Garfield County)

Side view of female (Ferry County)

Side view of male (Garfield County)

Underside of an adult female (Lincoln County)

Underside of an adult male (Franklin County)

Sagebrush Lizard habitat (Ferry County)

Sagebrush Lizard

Adult (Garfield County)

Side view of female (Ferry County)

Side view of male (Garfield County)

Underside of an adult female (Lincoln County)

Underside of an adult male (Franklin County)

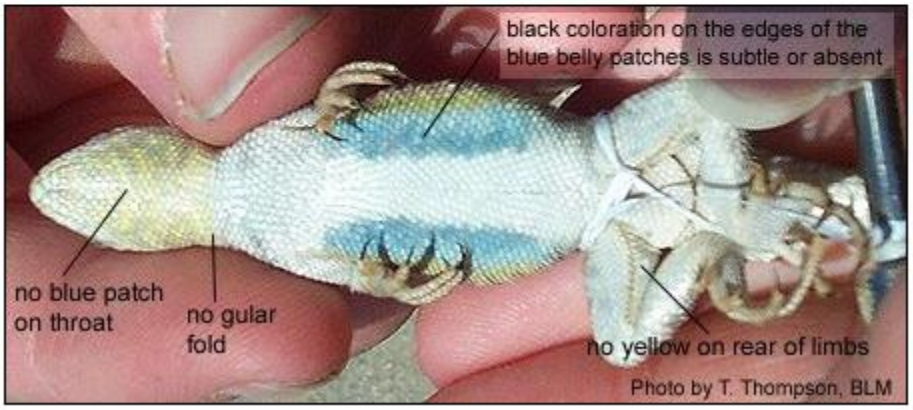
Sagebrush Lizard habitat (Ferry County)

Sagebrush Lizard habitat (Benton County)

Sagebrush Lizard habitat (Garfield County)

Key Features

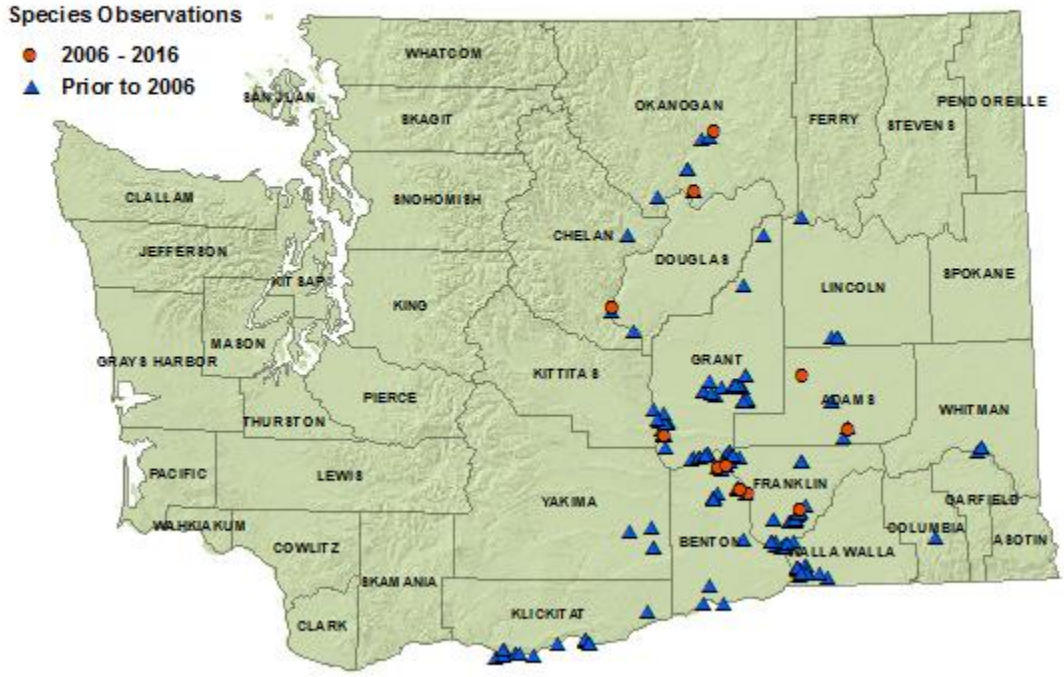
Adult (Garfield County)



Underside of an adult male (Garfield County)

Distribution Map

Sagebrush Lizard - Known Distribution



Side-blotched Lizard

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Side-blotched Lizard

Taxon, Status, and Rank

Species	*Uta stansburiana* Baird and Girard
Family	Iguanidae (Iguanids)
Status	none
State Rank	S3
Global Rank	G5

General Description

This is a small (maximum size 55 mm snout-vent length) brown or gray lizard with a mottling of black, brown and light colored markings on the dorsal surface. There is a black blotch on the body behind each forelimb. The belly is light colored with no obvious markings. A gular fold is present on the throat. Mature males have small, light blue spots on the back and an orange tinge to the neck, sides, forelimbs and tail. See Photos Page.

Identification Tips

The Side-Blotched Lizard is the only Washington lizard with a gular fold and a dark blotch on the body behind each forelimb. See Key Features Page.

Phenology

Activity starts in early to mid-March and continues into October. Egg laying probably takes place in May. Hatchlings start to appear in mid-July.

Range

In Washington, the historical range is the Columbia Plateau Ecoregion. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Side-blotched Lizards are associated with arid areas that support shrub-steppe habitat. They are most common in areas with bare ground interspersed with shrubs and other vegetation. They also occupy dry washes, rocky canyons and road edges. They tend to be common to abundant where they occur. Typically, individuals can be seen on the ground at the edge of shrubs or other vegetation that provide cover from predators. During the middle of the day, they retreat under ground or move under cover objects such as rocks and woody debris. They are not active on rainy days or on cool cloudy days.

State Status Comments

The majority of observation reports, submitted to the Washington Department of Fish and Wildlife over the last decade, have been limited to Gingko State Park (Kittitas Co.), the Hanford Site (Franklin, Grant and Benton cos.), Yakima Firing Center Military Reservation (Kittitas Co.), Babcock Bench (Grant Co.) and a few sites near Beverly (Grant Co.). The species is common to abundant in these areas. Three observations reports were submitted for new sites in 2002-2005 including Crow Butte State Park (Benton Co.), Jasper Canyon (Grant Co.) and Bowers Spring area (Grant Co.) based on the observation of 1-2 individual lizards. Little is known about the current status of the Side-blotched Lizard in other areas of the state. Many of the historical records were collected before 1960 and conversion to agriculture or urban use has been extensive in many of the areas.

Inventory and Research Needs

Occurrence information is needed from areas where the Side-blotched Lizard has not been reported to occur in over 20 years and also from areas where they have not been previously documented.

Threats and Management Concerns

Conversion of shrub-steppe habitat to agriculture is the main threat to Side-blotched Lizards. Activities that promote the invasion of cheat grass (*Bromus tectorum*) are also likely detrimental to this species.

Current Research

The Natural Heritage Program (L. Hallock) under a challenge-cost share contract from the Bureau of Land Management, has been surveying historical Side-blotched Lizard locations and conducting surveys at other sites in the Columbia Basin to determine the current distribution and status of this species. These surveys will continue in 2005.

References

Dvornich et al. (1997), Nussbaum et al. (1983), Stebbins (1985), Storm and Leonard (1995).

Hallock, L.A. and McAllister, K.R. 2005. Side-blotched Lizard. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos (next page)

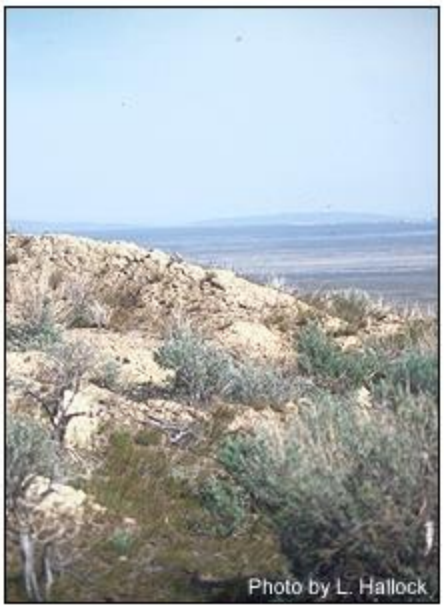
Side-blotched Lizard

Adult female (Grant County)

Adult (Grant County)

Photo of hatchling with typical reddish- brown head coloration.

Habitat (Grant County



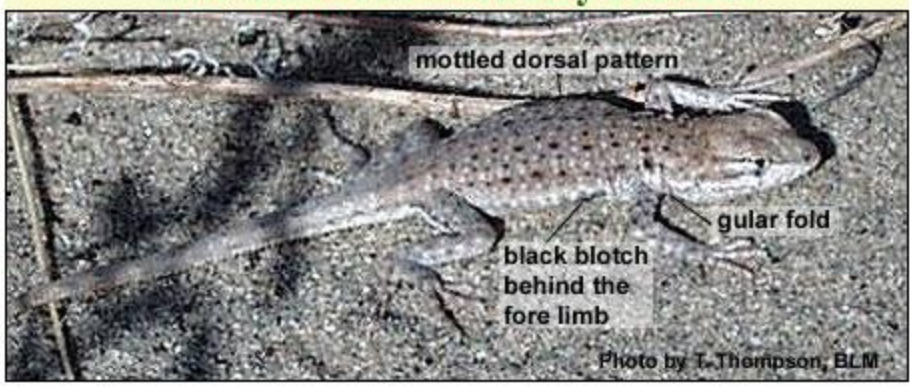
Habitat (Benton County)

Habitat (Grant County)

Habitat (Grant County)

Key Features (next page)

Side-blotched Lizard Key Features



Adult female (Grant County)

Side view of adult showing blotch (Grant County)

Underside of adult showing gular fold (Grant County)

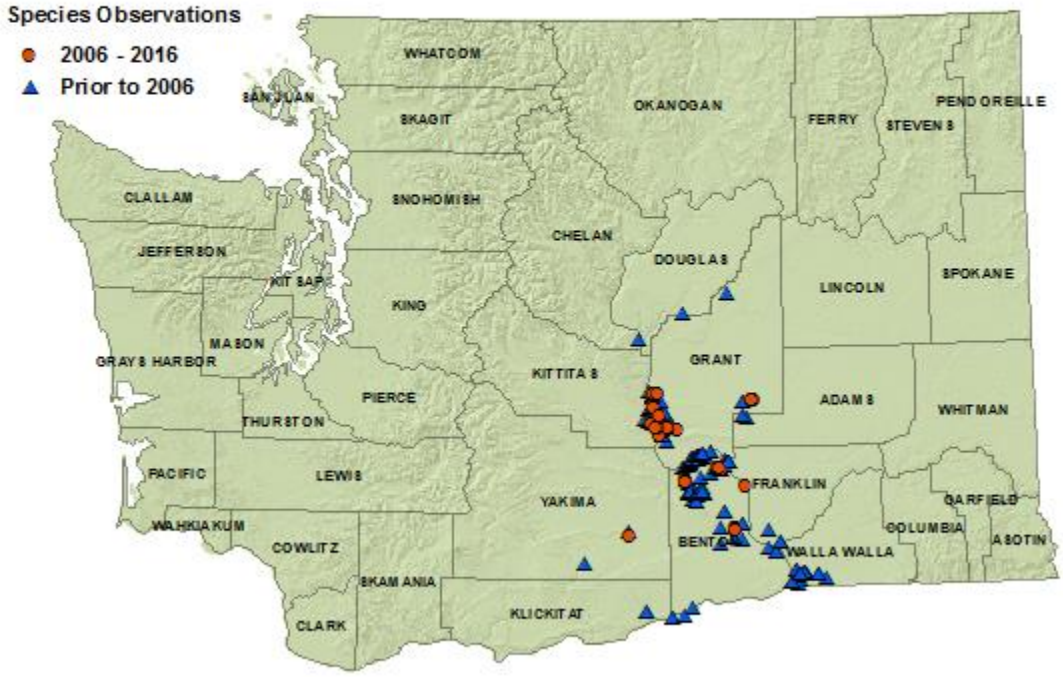
Adult female (Grant County)

Adult female (Grant County)

Ventral view of adult female (Grant County)

Distribution Map

Side-blotched Lizard - Known Distribution



Western Fence Lizard

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged

Western Fence Lizard

Taxon, Status, and Rank

Species	*Sceloporus occidentalis* Baird & Girard, 1852
Family	Phrynosomatidae (North American Spiny Lizards and allies)
Status	None
State Rank	S5
Global Rank	G5

General Description

This is a medium-sized gray, brown or brownish-black lizard with keeled, spiny scales dorsally and two rows of light and dark markings down the back. Largely based on temperature, individuals can lighten or darken considerably; when individuals darken, dorsal markings become difficult to see. Adults range in size from 5.6 – 8.7 cm (2.2-3.4 in.) snout-vent length. Blue patches exist on the sides of the abdomen and on the throat, and the keeled scales on the posterior surface of the thighs are yellow. These blue patches may be faint or lacking in females. In males, the blue coloration is more extensive and intense, and the abdominal patches typically have a medial lining of dark black. This coloration intensifies with age. Males also have scattered blue spots on selected scales on the back, enlarged post anal scales and a swollen tail base. Hatchlings and juveniles are similar in appearance to adult females but usually have lighter and more contrasting dorsal coloration. See Photos Page.

Identification Tips

Sagebrush Lizards are smaller (adults less than 60 cm snout-vent length), less robust, have orange- or rust-colored axilla (arm-pits), lack yellow coloration on the posterior surface of the thighs and the spiny dorsal scales are smaller than in Western Fence Lizards. In Washington, female and juvenile Sagebrush Lizards completely lack blue patches. In males, the blue patches on the abdomen are not edged in black and the throat patch is a blue and white mosaic, not solid. Because the dorsal scales are smaller, it is possible to run a finger from the tail to the head, against the scales, without catching on the scales of a Sagebrush Lizard but not Western Fence Lizard. The Side-blotched Lizard is smaller, has fine granular scales dorsally, a gular fold (a fold of skin at the throat) and a black spot on the side of the body behind the forelimbs. See Key Features Page.

Phenology

Activity in Washington varies depending on the location of the population. In the Puget Sound, where the climate is mild, activity starts in March. Individual lizards may be active on sunny warm days even earlier. In eastern Washington, activity is typically delayed until April and continues into October. Mating and egg laying behavior has not been described for Washington. Hatchlings appear in August and September in eastern Washington.

Range

The species occurs in three discontinuous ecoregions: Puget Trough, East Cascades and the Blue Mountains. A few records also exist on the western edge of Okanogan Ecoregion.

In the Puget Trough Ecoregion, observations are limited to marine shorelines and nearby uplands, both on the mainland and in island localities. Exceptions include a 1947 museum record from Manitou in Pierce County and recent observations of lizards near Chambers Creek in Pierce County. The population at Larabee State Park in Whatcom Co. is introduced.

Two isolated records exist in the Columbia Basin: a 1947 museum record from Dry Falls in Grant Co., and an old museum record from Cheney in Spokane Co. Western Fence Lizards have not been reported from these areas or any other area in the Columbia Basin except for these two specimens. Though the collectors were both experienced herpetologists, these specimens should still be checked to make sure that they were correctly identified. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

In the Puget Trough, they occur along shorelines with accumulations of driftwood. They have also been found in sunny, rocky areas, as well as an oak stand with rubbish piles, along Chambers Creek in Pierce County. East of the Cascades and in the Columbia gorge, they primarily occupy dry forests, such as Oregon-Oak and Ponderosa Pine, but also occur in non-forested habitats such as bitterbrush-grassland and grasslands. On occasion, they have been observed in clear-cuts and other openings in more heavily forested areas on the edge of their range. In treeless habitats, they tend to be associated with rocks, rock outcrops or other features that allow them to climb above the vegetation to bask and watch for prey, and in the case of males, defend territories and attract females. They are excellent climbers and will escape up trees or scamper around rock faces when approached. They are usually common where they occur. At night and when conditions are cool or rainy, they shelter under rocks and logs.

State Status Comments

Western Fence Lizards are common in Washington and conservation concerns are limited to protection of the relatively small number of populations associated with upper beach driftwood accumulations in the Puget Trough Ecoregion. Some of these populations could be lost to bulkheading and bank stabilization projects that seek to create home sites along the desirable Puget Sound shoreline. Loss of oak prairie habitat due to succession and invasion of exotic shrubs, especially Himalayan blackberry (*Rubus discolor*) and Scotch broom (*Cytisus scoparius*), may have contributed to their decline in the Puget Trough Ecoregion.

Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged

Inventory and Research Needs

Inventory is needed in the Puget Trough and Blue Mountain ecoregions to determine the current distribution and status. Observations can be submitted to the WDFW herp database by contacting Lori Salzer at salzeljs@dfw.wa.gov.

The pattern of loss of oak habitat in western Washington is generally acknowledged, but unstudied in context of egg-laying reptiles that may require well insolated ground in which to deposit their eggs. The Western Fence Lizard is one of five egg-laying reptile species that was historically presumably associated with oak prairie habitat on a wider scale; study of the habitat required for its terrestrial nest would provide significant insight into its management needs.

Threats and Management Concerns

Potential for loss of Puget Trough shoreline populations to bulkheading and bank stabilization projects. An unknown level of loss may have resulted from the succession and invasion of oak prairie habitat by shrubs.

References

Hallock (1999c), Nussbaum et al. (1983), Stebbins (1985)

Personal communications: H. Brown, M. Hayes

Hallock, L.A. and McAllister, K.R. 2005. Western Fence Lizard. Washington Herp Atlas. http://198.238.177.112/conservation/herp_atlas/

Last updated: February 2005

Photos

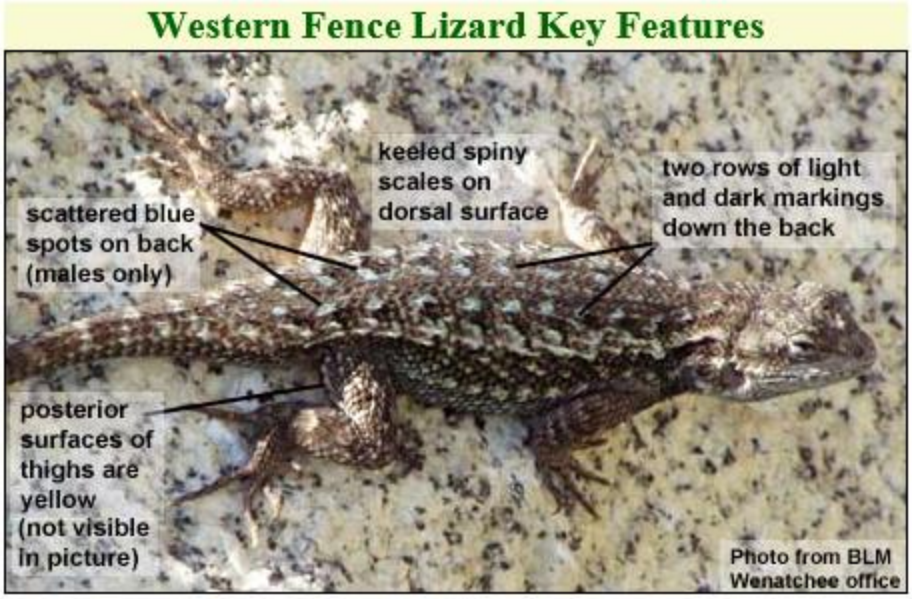
Western Fence Lizard

Adult

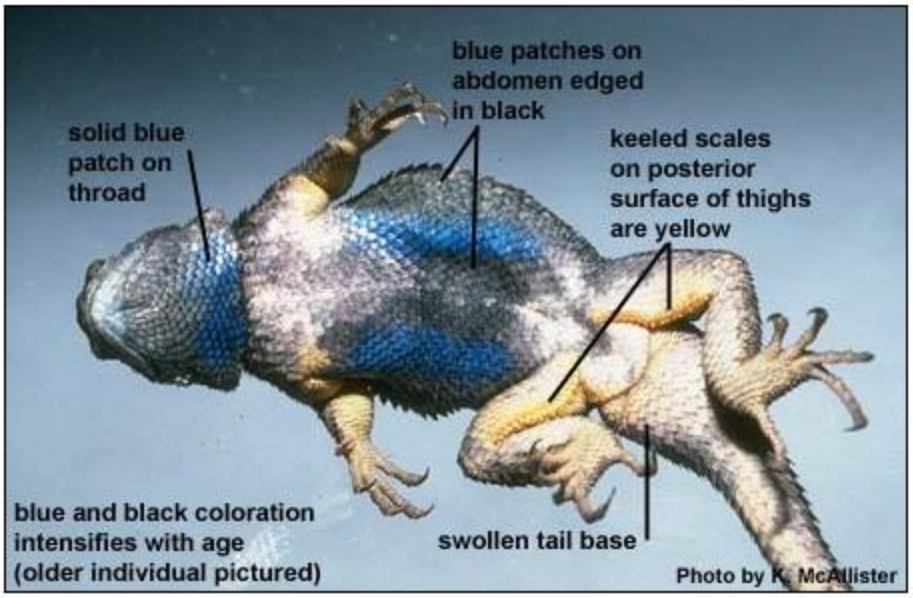
Adult

Underside of adult male

Key Features



Adult



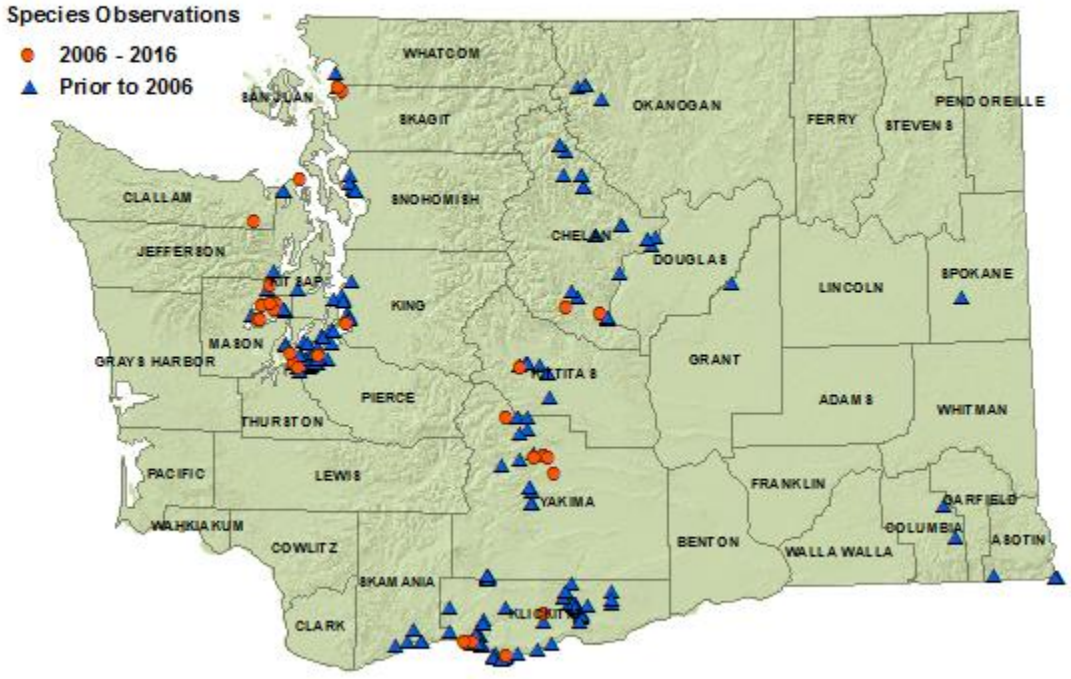
Underside of adult male

Side view of adult male, blue belly visible

View showing yellow coloration on posterior of thighs

Distribution Map

Western Fence Lizard - Known Distribution



Western Skink

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Western Skink

Taxon, Status, and Rank

Species	*Eumeces skiltonianus*	(Baird & Girard 1852)
Family	Scincidae (Skinks)	
Status	none	
State Rank	S5	
Global Rank	G5	

General Description

This is a small, slim, striped lizard with shiny scales, short legs and a long bright blue tail. The bright blue tail fades with age to dull blue, gray or brownish gray. Adults are 5.4 – 8.6 cm snout-vent length (2-2 4/5 in.) with a tail that is 1.5 to 2 times the body length. The mid-dorsal stripe is brown and bordered on each side by alternating dark (brown or black) and light (cream, beige or gray) stripes. The underside is light without markings. The tail is easily shed. Males develop a reddish tinge on the sides of the head and chin during the breeding season. Hatchlings and juveniles are similar to adults but the coloration is more intense and the tail is always blue. See Photos Page.

Identification Tips

The Western Skink is the only lizard in Washington with a bright blue tail, shiny scales and longitudinal stripes. See Key Features Page.

Phenology

The phenology of this species is poorly known in Washington. Activity starts in late March to early April depending on location and weather conditions. Similar to our other lizard species, activity probably continues into October. The timing of breeding and egg laying have not been described for Washington. In Utah, mating occurs in May or June, eggs are laid in July and hatch in August. In Idaho, hatchlings also appear in August.

Range

This is primarily a species of eastern Washington, occurring in the East Cascades, Okanogan, Columbia Basin, Northeast Corner and Blue Mountain ecoregions. A few locations have also been documented in southern Skamania County (West Cascades Ecoregion). See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Typical habitats are dry open forests, shrub-steppe and grassland. On the margins of their Washington range, they occur in openings within more heavily forested habitat. They often occur near water such as creeks or ponds, but also occur in dry habitats far from water.

Western Skinks are active during the day but are alert, secretive and rarely seen in the open. Most are found by turning rocks and woody debris. They are quick and agile; it is not uncommon to see only a flash of blue as they escape into woody debris or rocks. In areas without woody debris, searching under shale-like rocks at the base of basalt outcrops can be particularly productive, especially if the rocks are in contact with the ground. Even during intensive searching, it is possible to miss this species due to their secretive nature. Locals usually know this species is present because of the eye-catching color of the bright blue tail.

State Status Comments

Occurrences are wide-spread throughout the range and no declines have been reported. The lack of recent observations from some areas is likely due to a lack of survey effort and interest, as well as their secretive nature.

Inventory and Research Needs

Recent observations and observations from areas not indicated on the map can be submitted to the WDFW herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Current or Recent Research in Washington

None

Threats and Management Concerns

None at this time.

References

Nussbaum et al. (1983), St. Johns (2002), Stebbins (1985, 2003)

Web sites: Idaho Digital Atlas http://imnh.isu.edu/digitalatlas/bio/reptile/main/repfram.htm (15 June 05)

Hallock, L.A. and McAllister, K.R. 2005. Western Skink. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos

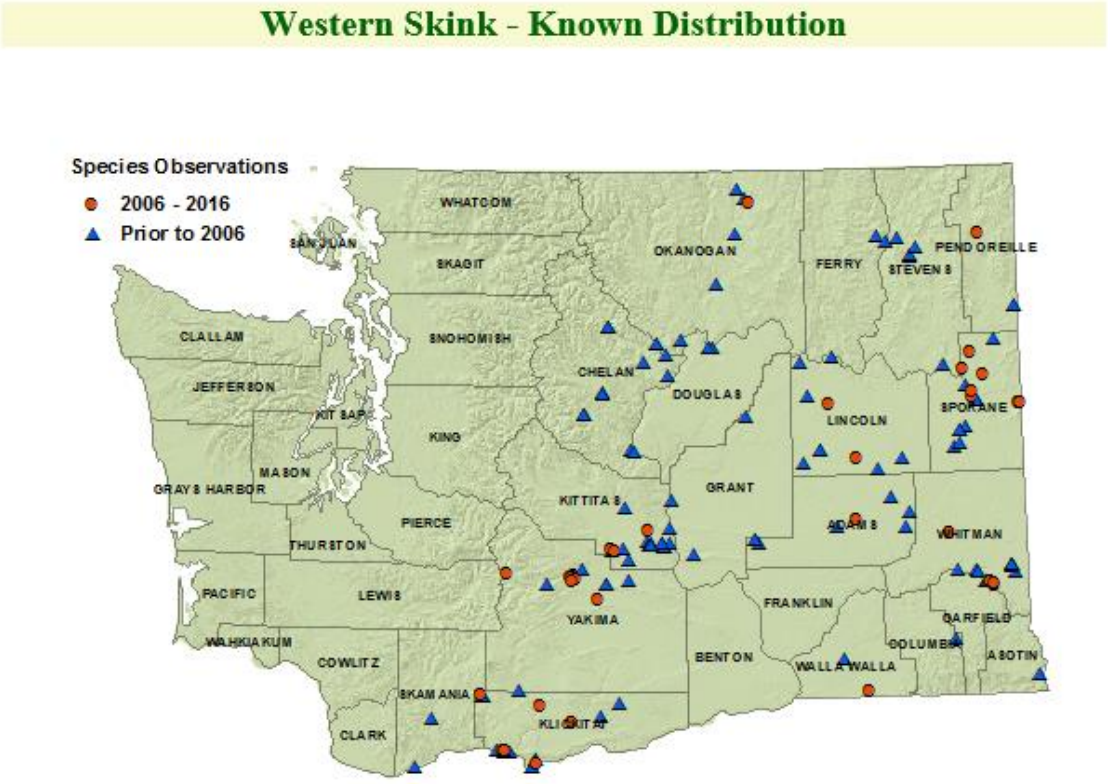
Adult (Klickitat County)

Habitat (Adams County)

Key Features

Adult (Grant County)

Distribution Map



Northern Alligator Lizard

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Northern Alligator Lizard

Taxon, Status, and Rank

Species	*Elgaria coerulea* (Wiegmann, 1828)
Family	Anguidae (Alligator Lizards and allies)
Status	none
State Rank	S5
Global Rank	G5

General Description

This is a small, slim, gray-brown to brown lizard with rough (keeled) scales, short legs and a long tail. Adults can approach 100 mm (3.9 in) snout-vent length. The dorsal and ventral scales are rectangular. Along the sides of the body, between the dorsal and ventral scales, there is an area where the scales are small and the skin is able to expand and fold. The overall dorsal coloration is brown with black spots forming transverse bands across the dorsal surface. White spots may be present on the edges of the lateral scales. The underside is light colored with dark pigmentation on the lateral edges of each scale. The eyes are brown. The tail is easily shed. Males have a broader, more triangular head than females. Hatchlings and juveniles are similar to adults but the dorsum is either plain brown or brown with only a single line of dark spots down the midline. The dorsal scales are typically lighter in color than the body folds. See Photos Page.

Identification Tips

The Northern and Southern Alligator Lizards are the only lizards in Washington with square scales and folds on the sides of the body. Southern Alligator Lizards differ in being larger (up to 141 mm snout-vent length with a tail double the length of the body), lacking dark pigmentation on the lateral edges of the ventral scales and in having yellow or gold eyes. See Key Features Page.

Phenology

The phenology of this species is poorly known in Washington. This species is relatively cold tolerant. Activity starts in late March to early April depending on location and weather conditions. Similar to our other lizard species, activity probably continues into October or early November. Breeding behavior has been observed in April and May in the lowland Puget Sound area. Females give birth about three months after breeding. Overwintering individuals have been found under rocks in borrow pits and hillsides.

Range

Northern Alligator Lizards occur in the Pacific Coast, Puget Trough, North Cascades, East Cascades, West Cascades, Okanogan and Rocky Mountain ecoregions. The species enters the Columbia Plateau ecoregion in Spokane and Whitman counties. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

This species inhabits grassy, brushy or rocky openings within forested landscapes. They have also been observed along road corridors and near lake edges. They can persist in low to moderately developed landscapes where they are typical seen in rock retaining walls, rock piles, woody debris and along building foundations.

They are active during the day but are secretive and rarely seen in the open. Most are found by turning rocks and woody debris. Even during intensive searching, it is possible to miss this species due to their secretive nature. In the spring, mating pairs have been observed within rock piles. The male bites the neck of the female and the two remain bonded for some time while breeding. In the fall, Northern Alligator Lizards often enter houses presumably in search of overwintering sites.

The tail is easily shed when the lizard is threatened. Loss of the tail has consequences to the lizard that can include a reduction in reproductive fitness and lower chances of surviving stressful environmental conditions.

State Status Comments

Occurrences are wide-spread throughout the range and no declines have been reported. The lack of recent observations from some areas is likely due to a lack of survey effort and interest, as well as the secretive nature of this species.

Inventory and Research Needs

Recent observations and observations from areas not indicated on the map can be submitted to the Washington Department of Fish and Wildlife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Current or Recent Research in Washington

None

Threats and Management Concerns

This species is vulnerable to predation by house cats. A lizard harassed by a cat will shed its tail. The cat is distracted by the wiggling tail and the lizard may escape unnoticed. Loss of the tail may have negative impacts on reproduction and survival of the lizard if food becomes limited.

References

Hallock and Leonard (1997), Nussbaum et al. (1983), Storm and Leonard (1995), Stebbins (2003).

Hallock, L.A. and McAllister, K.R. 2009. Northern Alligator Lizard. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

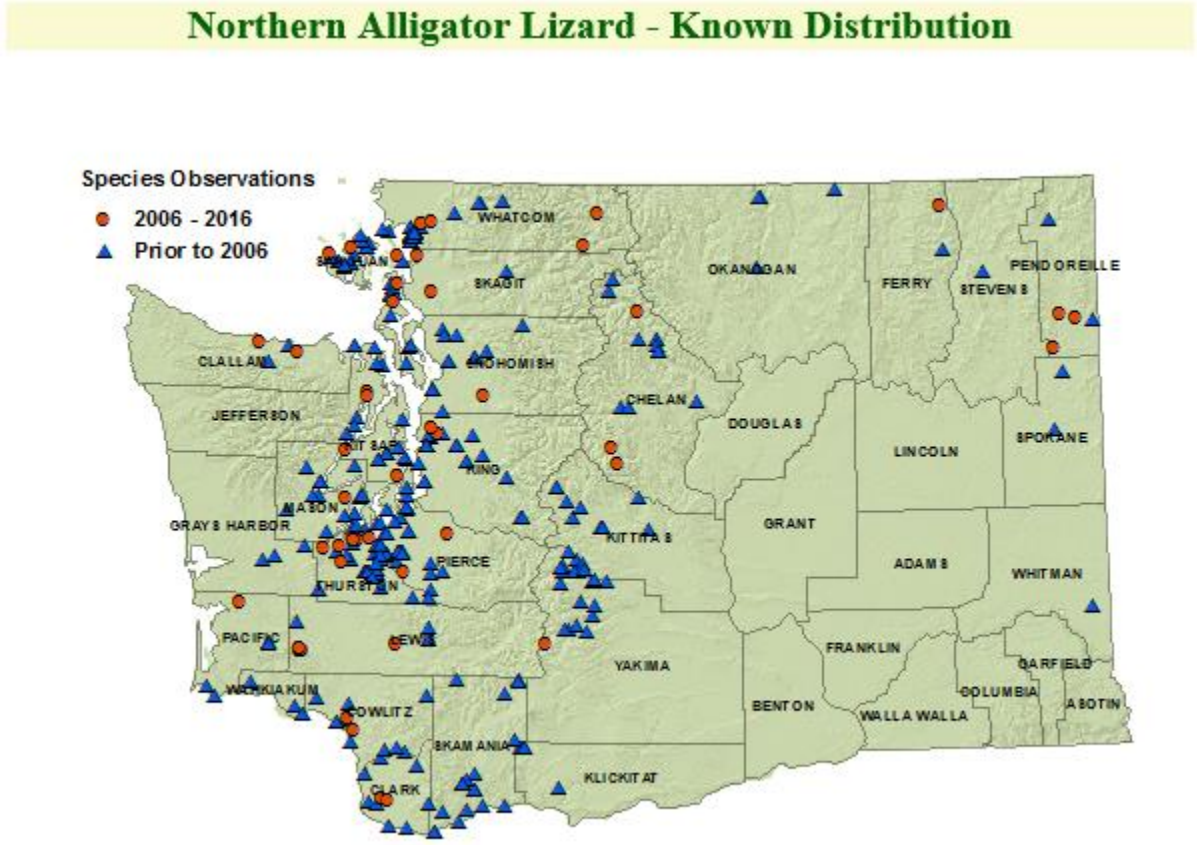
Photos

Juvenile (Thurston County)

Key Features

Ventral view (Thurston County)

Distribution Map



Southern Alligator Lizard

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Southern Alligator Lizard

Taxon, Status, and Rank

Species	*Elgaria multicarinata* (Blainville, 1835)
Family	Anguidae (Alligator Lizards and allies)
Status	none
State Rank	S4
Global Rank	G5

General Description

This is a large, slim, gray-brown to brown lizard with keeled scales, short legs and a long tail. An adult grows to 141 mm (5.6 in.) snout-vent length with a tail twice the body length. The dorsal and ventral scales are rectangular. Along the sides of the body, between the dorsal and ventral scales, there is an area where the scales are small and the skin is able to expand and fold. The overall dorsal coloration is brown with black spots forming transverse bands across the dorsal surface. White spots may be present on the edges of the lateral scales. The underside is light colored with no dark pigmentation on the lateral edges of each scale. The eyes are yellow or gold. The tail is easily shed. Males have a head that is broader and more triangular than females. Hatchlings and juveniles are similar to adults but the dorsum is plain brownish to reddish and the dorsal scales are typically lighter in color than the body folds. See Photos Page.

Identification Tips

Northern and Southern Alligator Lizards are the only lizards in Washington with rectangular scales and folds on the sides of the body. Northern Alligator Lizards differ in being smaller (less 100 mm snout-vent length), having dark pigmentation on the lateral edges of the ventral scales and in having brown eyes. See Key Features Page.

Phenology

The phenology of this species is poorly known in Washington. Activity starts in early April depending on location and weather conditions. Similar to our other lizard species, activity probably continues into October or early November. Breeding behavior starts soon after surface activity commences. Females lay eggs in talus in June. In Oregon, hatchlings start to appear in September and October. Similar to Northern Alligator Lizards, overwintering most likely occurs in rock features such as talus.

Range

Southern Alligator Lizards occur in the East Cascades Ecoregion. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

This species is typically found in rocky, grassy or brushy openings within open forested landscapes, primarily Oregon oak-ponderosa pine. They are also common along creeks and have been observed swimming and basking on rocks within creeks.

They are active during the day and much less secretive than the Northern Alligator Lizard. This may be due in part to the fact that they are much larger and therefore easier to see and hear as they move along the ground. They also climb with assistance from their prehensile tail and can be seen on the lower portions of tree trunks and in shrubs.

This species is aggressive and will bite when captured. The tail is easily shed when the lizard is threatened. This behavior can be life saving for the lizard but is not without negative consequences. Until the individual regenerates the tail and energy resources stored therein, reproductive fitness, and even survival, is lower than for lizards with intact tails.

State Status Comments

No declines have been reported. The species has a limited range in Washington. They can be common in suitable habitat. The lack of recent observations from some areas is likely due to a lack of survey effort and interest.

Inventory and Research Needs

Recent observations can be submitted to the Washington Department of Fish and Wildlife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Current or Recent Research in Washington

The authors are unaware of current research on this species.

Threats and Management Concerns

The authors are unaware of major threats and management concerns for this species.

References

Nussbaum et al. (1983), Stebbins (2003), Storm and Leonard (1995)

Hallock, L.A. and McAllister, K.R. 2009. Southern Alligator Lizard. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Photos

Adult

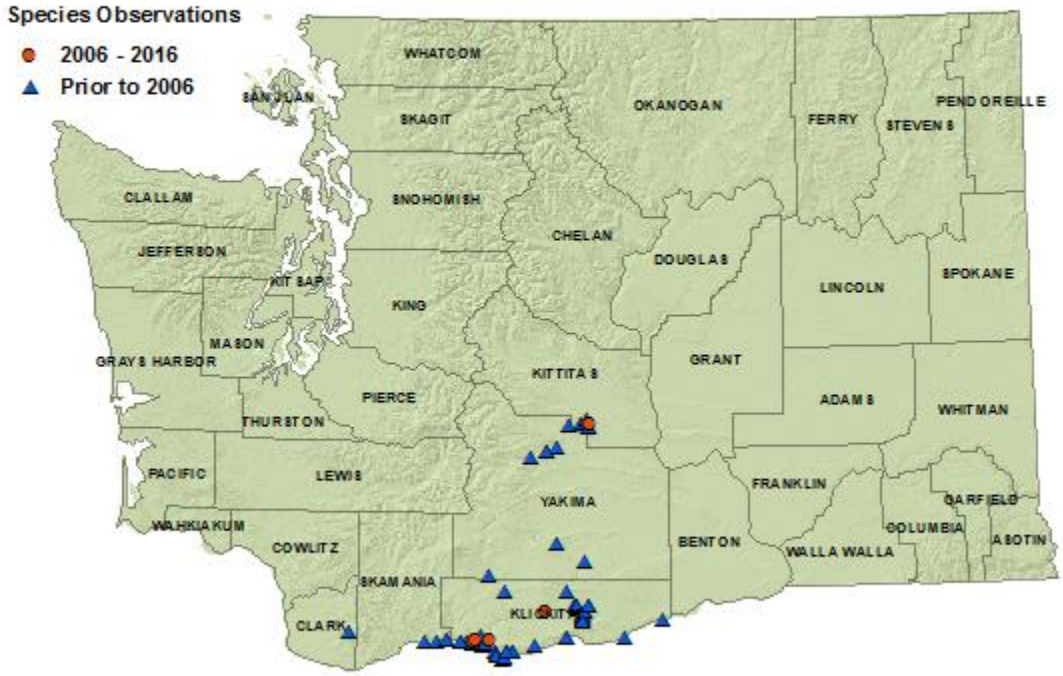
Key Features

Adult

Adult showing length of tail in comparison to body.

Distribution Map

Southern Alligator Lizard - Known Distribution



California Mountain Kingsnake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

California Mountain Kingsnake

Taxon, Status, and Rank

Species	*Lampropeltis zonata* Blainville
Family	Colubridae (Colubrids)
Status	State Candidate
State Rank	S1
Global Rank	G4G5

General Description

A medium-sized snake with red, black, and white bands. The red bands are bordered by black. The scales are smooth and occur in 21 or 23 rows at mid-body. The pupil is round. Adults range in size from 50 to 100 cm total length. California Mountain Kingsnakes superficially resemble the venomous coral snakes, but are harmless. See Photos Page.

Identification Tips

No other snake in Washington has this color pattern. A white snout or white spots on the black bands would indicate a different species, as would a lack of red bands. See Photos Page.

Phenology

Little is known about this species in Washington. It is chiefly diurnal, but may be nocturnal during warm weather. Similar to other snakes that occupy the same area, it most likely becomes active in late March or April and remains active until October. Mating probably takes place in May with eggs laid in June or July. The incubation period is approximately 60 days.

Little is known about this species in Washington. It is chiefly diurnal, but may be nocturnal during warm weather. Similar to other snakes that occupy the same area, it most likely becomes active in late March or April and remains active until October. Mating probably takes place in May with eggs laid in June or July. The incubation period is approximately 60 days.

Range

The Washington range is limited to the southernmost areas of eastern Skamania County and western Klickitat County. The Washington range is isolated from the rest of the species' range by approximately 200 miles. Unsubstantiated reports exist for the Blue Mountains and Yakima County. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

The species occurs in moist microhabitats in Oregon White Oak-Ponderosa Pine forest where individuals are usually found under woody debris and rocks.

State Status Comments

The status is based on the small range and sparse number of sightings in Washington. The Washington occurrence is also significant because it is at the northern extreme of the species' range and is isolated by over 200 miles from the rest of the range in southern Oregon and California.

Inventory and Research Needs

All sightings of this species should be reported to the Washington Department of Fish and Wildlife. Of special interest is any sighting that occurs outside the known distribution. Research is needed on the population status in Washington and on habitat requirements.

Threats and Management Concerns

Habitat alteration, destruction of overwintering sites and illegal, unregulated collecting are the main threats to this species.

References

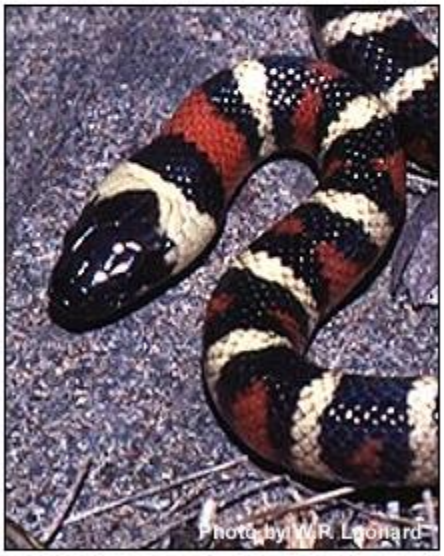
Johnson (1939), Nussbaum et al. (1983), Stebbins (1985), Storm and Leonard (1995).

Hallock, L.A. and McAllister, K.R. 2005. California Mountain Kingsnake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Photos

California Mountain Kingsnake

Adult (Klickitat County)



Close-up showing head

Habitat photo not available at this time

Distribution Map

California Mountain Kingsnake - Known Distribution

Common Gartersnake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Common Garter Snake

Taxon, Status, and Rank

Species	*Thamnophis sirtalis* (Linnaeus, 1766)
Family	Colubridae (Colubrids)
Status	none
State Rank	S5
Global Rank	G5

Our three garter snake species are similar in general appearance and have coloration and patterns that vary regionally and by individual. All traits, especially scale counts, color and pattern, must be examined to correctly identify a garter snake to species. Although little appreciated, these are beautiful snakes with many stunning color variations.

General Description

This is a medium-sized dark snake with stripes. Typically three stripes are present; a thin dorsal stripe on the middle of the back and two thin lateral stripes on the 2nd and 3rd dorsal scale rows. The lateral or dorsal stripes may be absent in some individuals. Adults can reach 1372 mm (54 in.) total length but individuals in Washington are shorter. The pupil is round. The scales are keeled and there are usually 19 rows at mid-body, 7 scales lining the upper jaw (upper labials) and 10 scales lining the lower jaw (lower labial scales).

The Common Garter Snake has the greatest geographical distribution of any garter snake with a dorsal pattern that is the most variable of any of the garter snake species (*Thamnophis* sp.). The traits given below are specific to Washington and are based primarily on the authors' observations and the description in Storm and Leonard 1995.

Storm and Leonard 1995 provide detailed descriptions for each subspecies found in Washington: *T.s. concinnus* occurs in the Pacific Coast and southern Puget Trough ecoregions; *T. s. fitchi* occurs in eastern Washington ecoregions; and *T.s. pickeringii* occurs in the Puget Trough lowlands, primarily the Puget Trough ecoregion and portions of surrounding ecoregions.The following is a general description of the various color forms most likely to be seen in eastern and western Washington.

Eastern Washington
In eastern Washington, Common Garter Snakes are black bodied with bright yellow dorsal and lateral stripes. Distinct red blotches are present on the sides of the body just above the lateral stripes. A red cheek blotch is usually present. The ventral coloration is yellow or buff. Individuals, in some areas, may have blue or turquoise lateral stripes instead of yellow and these snakes usually have blue ventral scales.

Western Washington
In western Washington, red blotches may or may not be present and the stripe coloration is much more variable.

Ground color is slate gray or black, sometimes with a bluish tinge. Stripe colors are yellow, green, turquoise or blue. All stripes may be the same color or the lateral stripes may differ from the dorsal stripe in color. The ventral coloration is usually yellow or cream under the chin with increasing black pigmentation toward the tail. Snakes with blue lateral stripes usually have blue ventral coloration.

Snakes without red blotches have white patches of skin between the scales on the sides of the body. This trait will not be obvious in most snakes without gently stretching the skin to separate the scales above the lateral stripes. This trait is usually more prominent near the head. Other variations include orange blotches instead of red; blotches only on the anterior portions of the snake; or red blotches that are hidden under dark scales. In very melanistic individuals, all the skin between the scales is black and no white or red blotches are present. See Photos Page.

Identification Tips

Differences in scale counts are important for distinguishing the garter snakes. Common Garter Snakes usually have 19 scales at mid-body, 7 upper labial scales and 10 lower labial scales. Occasionally, extra labial scales are present.

In Washington, only the Common Garter Snake has red blotches on the sides of the body above the lateral stripe. Snakes lacking red blotches usually have white blotches on the skin between the scales above the lateral stripes. No dark spotting is present on the dorsal surface.

In Western Washington, Northwestern Garter Snakes and Common Garter Snakes are the most difficult species to distinguish based on coloration. Dark bodied Northwestern Garter Snakes with green, turquoise, blue or yellow stripes are common. The scale counts differ; Northwestern Garter Snakes have 17 scales at mid-body (occasionally 19), 7 upper labial scales and 8 or 9 lower labials.

Striped Whipsnakes differ in having smooth scales, 15 dorsal scale rows, and a mid-dorsal area that is dark brown or black with multiple white or yellow stripes on the sides of the body. See Key Features Page.

Phenology

At low elevations, activity starts in March and continues into early November. Snakes may remain in the vicinity of the overwintering site for two or more weeks until mating is complete and weather conditions are appropriate for dispersal. At low elevations in western Washington, snakes may be surface active in the vicinity of the overwintering site whenever site conditions warm over about 13 °C (55°F).

The species breeds in spring after emergence. Males emerge before females and spend time on the surface near the overwintering sites. When a female emerges, the males will attempt to mate with her forming "mating balls" of many males around one female. After mating, snakes disperse to summer foraging areas. In the lower Puget Sound area, female garter snakes of all three species are commonly found clustered in open grassy areas. This behavior may be related to thermoregulation and gestation. The young are born in late summer and early fall depending on location. In the lowland Puget Sound area, neonates start to appear in late August and early September.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Range

Common Garter Snakes occur in all Washington Ecoregions. Occurrences are patchy in the central Columbia Basin. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

In Washington, Common Garter Snakes are almost always found near water. Typical aquatic habitats include wetlands, bogs, ponds, lakes, springs, creeks, and rivers. They are good swimmers and can hunt both on and below the water surface. Juvenile Common Garter Snakes have been observed hunting newly metamorphosing Pacific Treefrogs in shallow, seasonal, water bodies. Typical terrestrial habitats include sunny areas near water such as meadows, oak patches, forest openings, and shrubby areas. In the spring and fall snakes may be found away from water as they move to and from terrestrial overwintering sites.

Common Garter Snakes defend themselves by releasing the contents of their cloaca and musk glands then smearing this pungent foul smelling mixture over themselves and their attacker. Some will also regurgitate the content of their stomach and most will bite.

Common Garter Snakes are one of the few vertebrates that can successfully prey on the extremely toxic Rough-skinned Newt. Recent research indicates that these snakes harbor significant amounts of active toxin in their tissues after consuming a newt. The amount of toxin in the liver varies depending on the number of newts eaten, but the amount in many cases is enough to severely incapacitate or kill avian predators and negatively affect mammalian predators.

State Status Comments

This is one of our most common snake species. No declines have been reported in Washington. Declines in amphibian populations could potentially result in Common Garter Snake declines. Reported declines in other states and Canadian provinces have been due to habitat loss and overcollecting for the pet and scientific trade.

Inventory and Research Needs

Observations can be submitted to the Washington Department of Fish and Wildife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov.

Threats and Management Concerns

Over hunting or collecting, wanton killing and destruction of overwintering sites can result in local declines. Road mortality is also a threat in areas where snakes cross roads to access overwintering or foraging habitat.

References

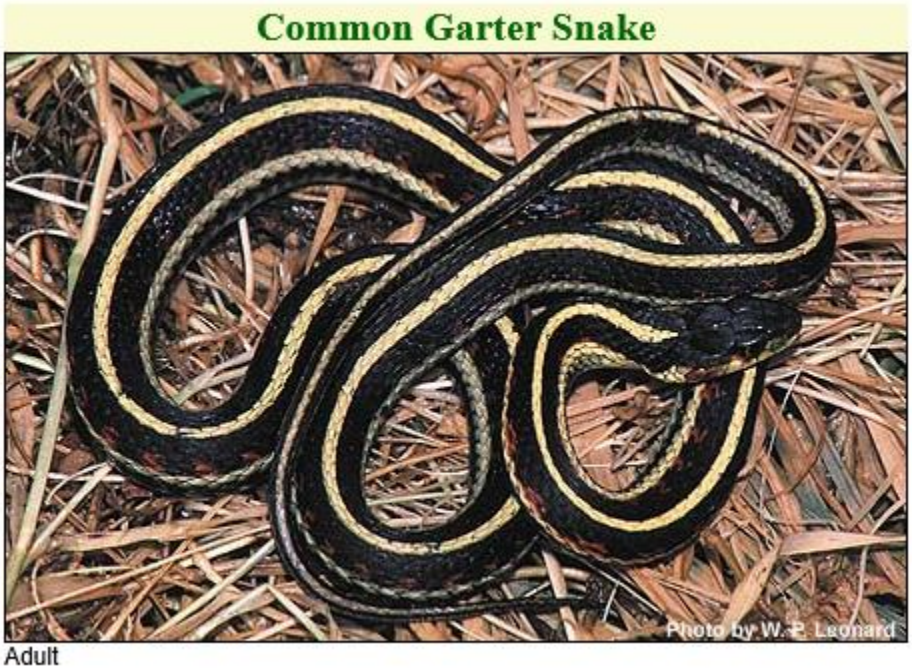
Hallock and Leonard (1997); Rossman et al. (1996); Storm and Leonard (1995); Williams et al. (2004)

Personal communication: B. Leonard

Hallock, L.A. and McAllister, K.R. 2009. Common Garter Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: May 2009

Photos



Adult

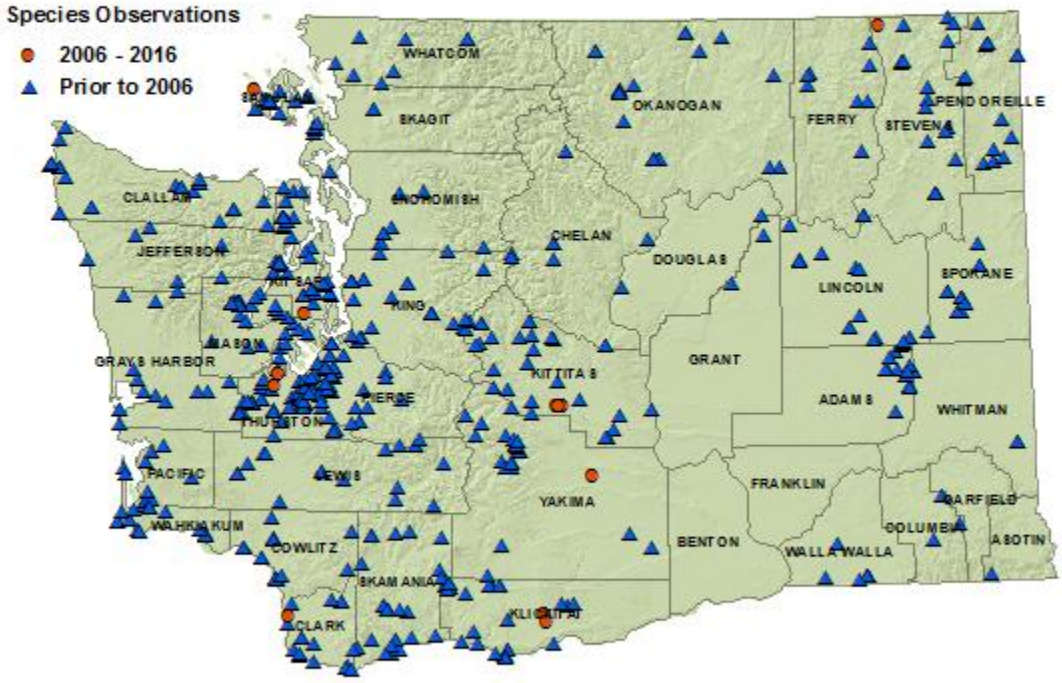
Key Features

Adult

Upper labials

Distribution Map

Common Garter Snake - Known Distribution



Gopher Snake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Gopher Snake

Taxon, Status, and Rank

Species	*Pituophis catenifer* (Blainville, 1835) = *P. melanoleucus*
Family	Colubridae (Colubrids)
Status	none
State Rank	S5
Global Rank	G5

General Description

This is a large snake with dark blotches, a distinct eye stripe and a tail that tapers to the tip. Adults can grow to around 180 cm total length in the Northwest. In Washington, they are usually beige or tan with large dark brown or black square-shaped blotches down the back and smaller blotches on the sides. The tail is banded. The head is somewhat triangular in shape, becoming more pronounced when the snake is agitated. A distinct eye stripe is present from the edges of the jaw, through the eyes and across the snout. A small dark "tear-like" marking occurs below each eye. The dorsal scales are keeled with 29-37 scales at mid-body. The pupils are round. The underside is white with black spots on the edges of the ventral scales. Juveniles resemble adults. No obvious external features distinguish males from females. These snakes are commonly called "Bullsnakes." See Photos Page.

Identification Tips

Western Rattlesnakes (Crotalus oreganus) differ in having a rattle, facial pits and vertical pupils. Night Snakes (Hypsiglena torquata) differ in having smooth scales, vertical pupils and a pearly white belly with no dark markings. Juvenile Racers (Coluber constrictor) differ in having indistinct blotching, smooth scales and no eye mask. See Key Features Page.

Phenology

In most of the Columbia Basin, Gopher Snakes emerge from overwintering sites in late March or early April. They are typically one of the first snakes to be found active away from overwintering sites. Young start to appear in late August or early September. Activity continues into late October depending on location and weather conditions.

Range

Gopher Snakes occur east of the Cascade Mountains primarily in the Columbia Basin and Okanogan ecoregions. A few occurrences are documented in the East Cascades Ecoregion.

Two Gopher Snake specimens, collected in the late 1800s from the "Puget Sound", are housed in the U.S. National Museum, Washington D.C. George Suckley, a physician and naturalist with the Pacific Railroad Surveys 1853-1855, reported that the Gopher Snake was "found sparingly at Puget Sound." With the exception of a few, scattered individuals of the eastern Washington subspecies, Gopher Snakes have not been verified present in western Washington since that time. Their historic occurrence in western Washington was likely the result of extensive prairies in the south Puget Sound region. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

In Washington, Gopher Snakes are primarily a species of dry habitat types such as shrub-steppe, Oregon White Oak and ponderosa pine forests. They spend a great deal of time below the surface in animal burrows. They can be active day or night.

Gopher Snakes exhibit dramatic defensive behaviors including hissing, puffing the body, coiling, flattening the head, vibrating the tail, and striking. This behavior, combined with their general appearance, mimics rattlesnakes. Gopher Snakes will bite if threatened but the bite is not venomous. Unfortunately for Gopher Snakes, people who mistake them for rattlesnakes often needlessly kill them. They serve an important function in wildlife communities, preying extensively on small mammals.

Gopher Snakes are particularly easy to find on roads. It is common in the summer to find them basking on roads in the late afternoon and early evening. They exhibit behaviors that make them particularly vulnerable to being killed by vehicles. They tend to bask with their bodies in a straight line and move by inching their way across roads with the body fully extended. When approached, they tend to take a defensive stand (coiling) instead of fleeing to the side of the road.

State Status Comments

This species is common and widespread in eastern Washington. Gopher Snakes in western Washington are most likely extirpated.

Inventory and Research Needs

Observations from areas not indicated on the map can be submitted to the WDFW herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Of particular interest are observations from western Washington, observations that occur outside the known distribution and recent observation records from Walla Walla County.

The Gopher Snake specimens collected from Puget Sound in the 1800s were a different subspecies (Pacific Gopher Snake, P.c. catenifer) than those found in eastern Washington (Great Basin Gopher Snake, P.c. deserticola). The most obvious features that distinguish the Great Basin Gopher Snake from the Pacific Gopher Snake are the dark dorsal blotches that, in the Great Basin subspecies, are connected near the head and the blotches on the side of the neck merge to form lines.

Current or Recent Research in Washington

None known at this time.

Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Threats and Management Concerns

This species appears to be common and widespread. No major declines have been reported.

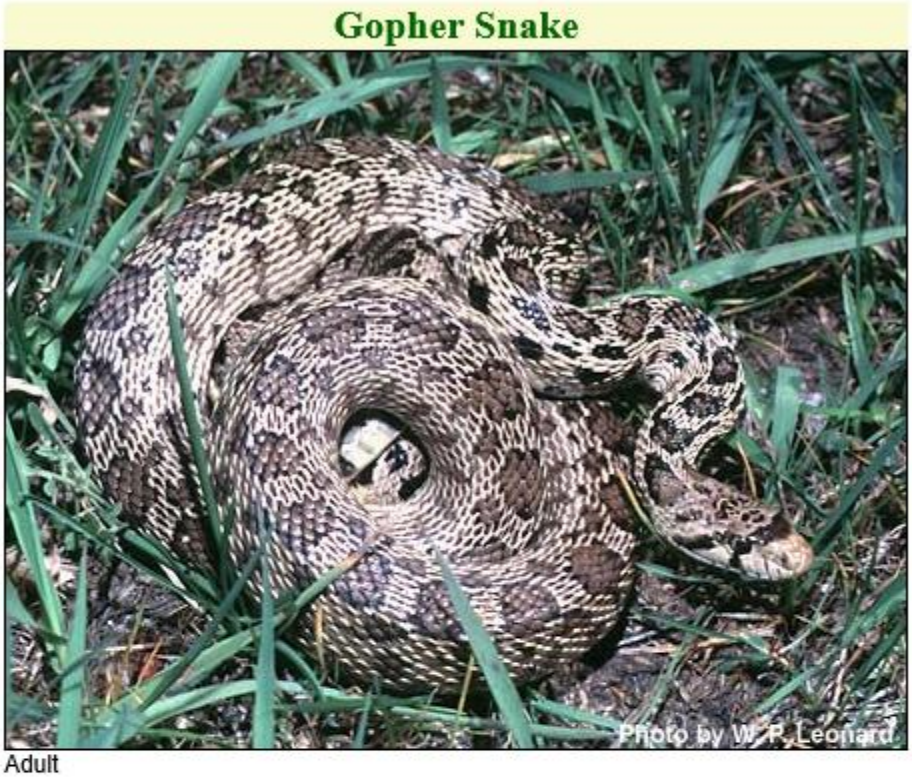
References

Hallock (1998), McAllister (1995), Suckley & Cooper (1860)

Hallock, L.A. and McAllister, K.R. 2005. Gopher Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos

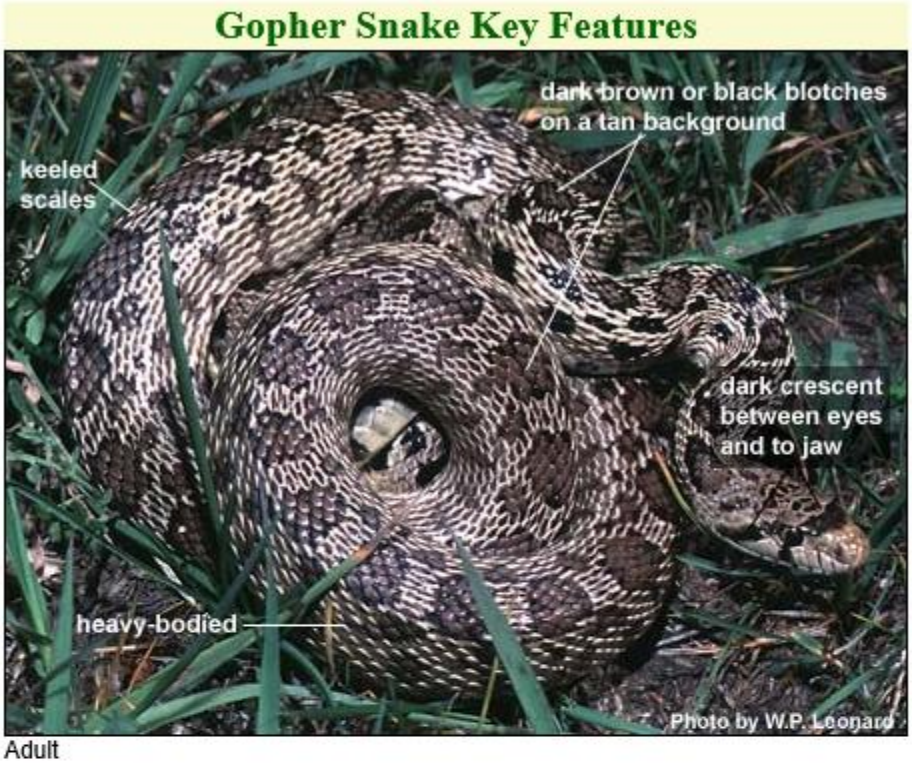


Adult

Adult (Grant County)

Juvenile (Grant County)

Key Features



Adult

Close-up of head (typical markings)

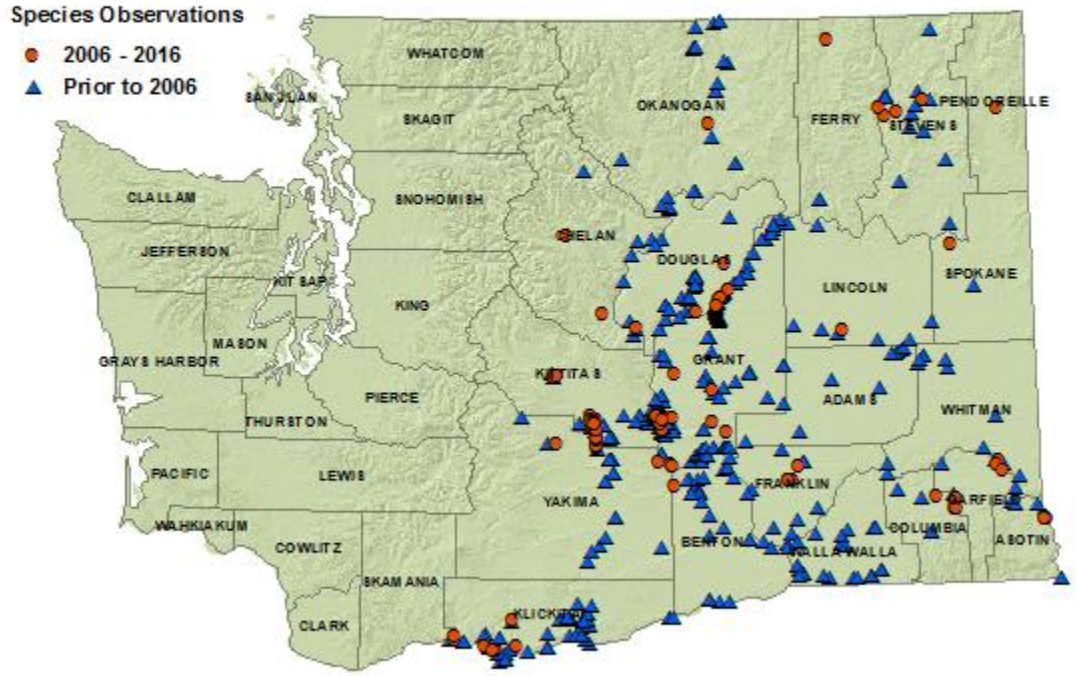

Close-up of head (Grant County?)


Agitated gopher snake with head flattened and ready to strike (Grant County)


Agitated rattlesnake ready to strike (Grant County)

Distribution Map

Gopher Snake - Known Distribution



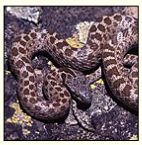
Night Snake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Pacific Chorus Frog
Pacific Giant Salamander
Pacific Tree Frog
Rough-skinned Newt
Spotted Frog
Tailed Frog
Van Dyke's Salamander
Western Toad
Western Red-backed Salamander
Reptiles:
Common Garter Snake
Gopher Snake
Night Snake
Northern Alligator Lizard
Northern Pacific Rattlesnake
Northern Rubber Boa
Painted Turtle
Racer
Ringneck Snake
Sagebrush Lizard
Short-horned Lizard
Side-blotched Lizard
Striped Whipsnake
Western Fence Lizard
Western Skink
Western Terrestrial Garter Snake
Western Toad
Western Yellow-bellied Racer
Wood Frog

Night Snake

Taxon, Status, and Rank

Species	*Hypsiglena torquata* Gunther
Family	Colubridae (Colubrids)
Status	State Monitor
State Rank	S3
Global Rank	G5



General Description

This is a small snake usually less than 46 cm in total length. The overall appearance is of a spotted snake with dark brown blotches in the neck region. The ground color is light but appears gray, tan, or light brown due to speckles of pigmentation on each scale. Brown blotches run the length of the body. The blotches in the neck region are distinctly larger and vary in appearance. This species has a dark eye stripe from the nostril to the jaw. The upper labial scales are white speckled with brown. The belly scales are pearly white with no markings. Scales are smooth and the mid-body count is 19-21 rows. Pupils are vertical in bright light. This snake is rear fanged and mildly venomous. See Photos Page.

Identification Tips

Washington species that are similar in appearance include the Gopher Snake, Rattlesnake and juvenile Racer. Only the Night Snake has both smooth scales and vertical pupils. See Key Features Page.

Phenology

In Washington, Night Snakes are active from April to October. Mating takes place in the spring, with three to nine eggs laid in June or July each year. Very little is known about the locations selected for egg laying, incubation periods, or the factors that contribute to successful reproduction. Similarly, survival rate, growth rates, and longevity are largely unknown.

Range

In Washington, Night Snakes have been documented from 24 isolated areas of the Columbia Plateau, Eastern Cascades, and Okanogan Ecoregions. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Most Night Snake occurrences in Washington are from arid areas that support shrub-steppe vegetation, but occurrences in the Leavenworth area are in ponderosa pine forests. Individuals are usually found in rocky areas, but have also been found in sagebrush flats that are not rocky. Activity is nocturnal. During the day, individuals can be found under surface objects, generally rocks. However, during prolonged periods of hot weather, they may move deep into talus, rock fissures or rodent burrows. During these warm summer periods, Night Snakes are most easily found on road surfaces at night. Night Snakes eat small lizards and smaller snakes, as well as lizard eggs, frogs, and other small prey. Distribution may be limited by the occurrence of certain lizard prey species.

State Status Comments

The status change from S2 to S3 is based on 66 new observations collected between 2003-2004 from 7 Washington Counties. Robert Weaver, a graduate student at Central Washington University, collected 63 of the records. His work indicates that the species is much more common than was previously known but the rank is S3 because of the species association with declining shrub-steppe habitat. Night Snakes are now known to be present in 24 areas, with recent confirmation at 20 of these sites.

Inventory and Research Needs

The apparent isolation of populations needs to be verified with searches of intervening areas. Food habits, home range, shelter requirements, egg-laying and overwintering habitat associations, and basic demographics need to be investigated. Any sighting that occurs outside the known distribution should be reported to the Washington Department of Fish and Wildlife. Sightings from Okanogan and Walla Walla counties are needed to confirm current presence. Historical records from these counties are from Pateros, McNary Wildlife Recreation Area, and the Prescott area.

Threats and Management Concerns

The loss of extensive patches of shrub-steppe habitat patches is a primary concern as this habitat is being lost to agricultural conversion and various types of development.

Current Research

Robert Weaver, a graduate student at Central Washington University in Ellensburg, is nearing completion of his master's thesis on the ecology of night snakes in Washington. Robert's work has contributed to knowledge of the distribution of the species in the state. Other important life history, habitat, climate, and diet details will be better understood with the completion of this thesis.

References

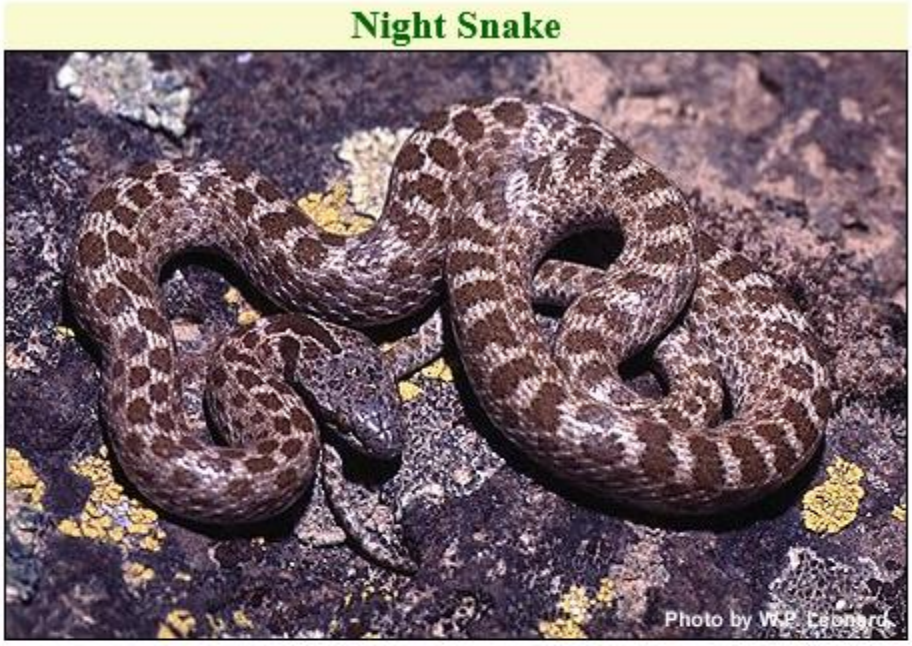
Nussbaum et al. (1983), Stebbins (1985), Storm and Leonard (1995).

Personal Communications: R. Weaver

Hallock, L.A. and McAllister, K.R. 2005. Night Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

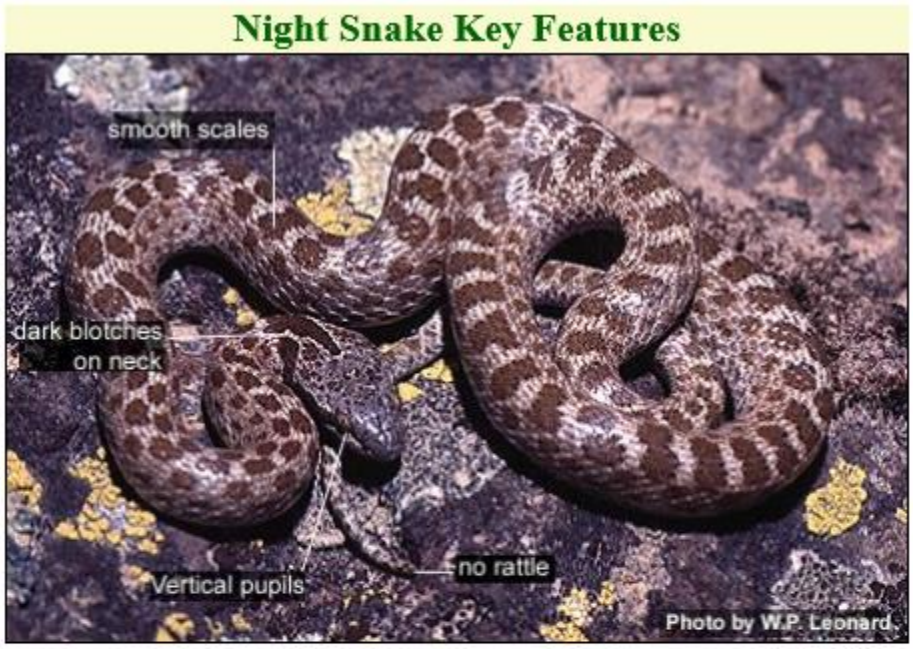


Adult (Owyhee County, Idaho)

Adult (Grant County)

Night Snake habitat (Grant County)

Key Features



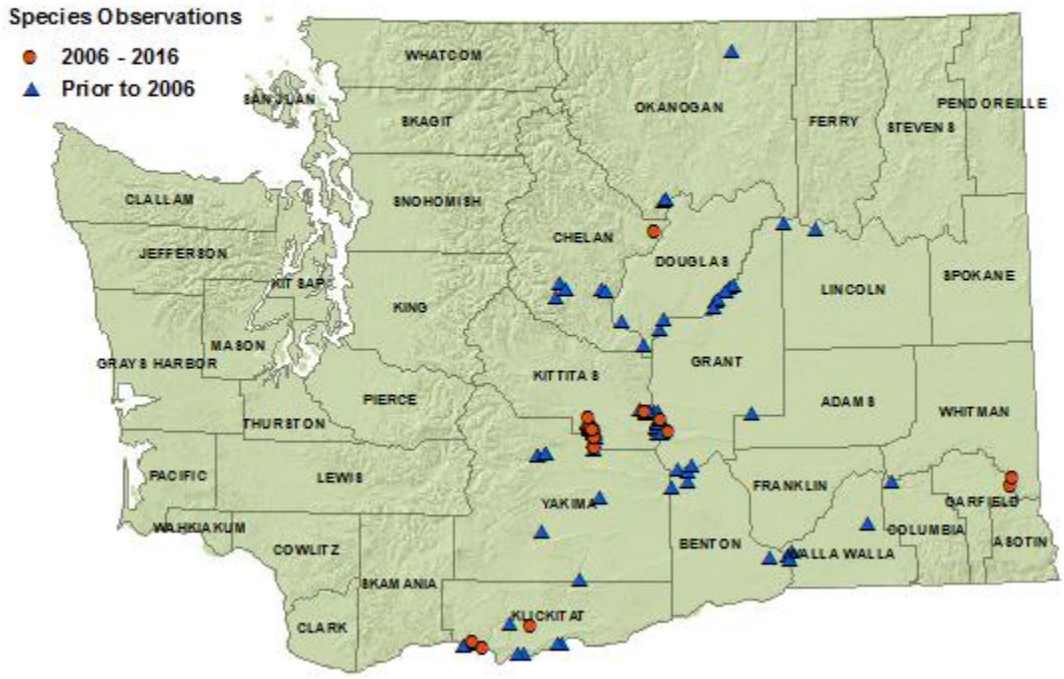
Adult (Owyhee County, Idaho)

Vertical pupils and dark horizontal band behind eye

Dark speckling on scales

Distribution Map

Night Snake - Known Distribution



Northwestern Gartersnake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Northwestern Garter Snake

Taxon, Status, and Rank

Species	*Thamnophis ordinoides*	(Baird and Girard, 1852)
Family	Colubridae (Colubrids)	
Status	none	
State Rank	S5	
Global Rank	G5	

Our three garter snake species are similar in general appearance and have coloration and patterns that vary regionally and by individual. All traits, especially scale counts, color and pattern, must be examined to correctly identify a garter snake to species. Although little appreciated, these are beautiful snakes with many stunning color variations.

General Description

This is a small to medium-sized, brown or black snake with stripes. Spots may also be present. Typically three stripes are present; a thin vertebral stripe and two thin lateral stripes. The vertebral and/or lateral stripes may be absent. Adults rarely exceed 600 mm (23.6 in.) total length. The pupil is round. The scales are keeled and there are usually 17 (occasionally 19) rows at mid-body. The upper jaw has 7 scales (upper labials) and the lower jaw has 8-9 scales (lower labial scales).

Coloration and patterns are highly variable. The dorsal color is brown, dark brown, slate gray or black. The vertebral stripe is white, yellow, orange, red, green, turquoise, or blue. The lateral stripes are white, yellow, green, turquoise, or blue. Small dark spots may be present between the vertebral stripe and the lateral stripes. White flecks are present on the edges of the dorsal scales. The ventral coloration is usually white or yellow at the chin with increasing bluish or black pigmentation toward the tail. Red, orange or salmon colored blotches are usually present on the ventral surface of individuals with red vertebral stripes.

The following three variations are commonly seen in Washington: 1) A dark dorsal color with yellow, green, turquoise or blue vertebral and lateral stripes; 2) A brown dorsal color with dull yellow vertebral and lateral stripes and two rows of alternating small dark spots above the lateral stripes and adjacent to the vertebral stripe; and 3) A dark dorsal color with a red vertebral stripe and bright yellow lateral stripes. In some individuals, the red pigment is only present in part of the vertebral stripe or appears more orange than red. See Photos Page.

Identification Tips

Depending on stripe color and pattern, Northwestern Garter Snake can be easily mistaken for either the Common Garter Snake or Western Terrestrial Garter Snake. Northwestern Garter Snakes differ in having 17 scales (occasionally 19) at mid-body, 7 upper labial scales and 8-9 lower labial scales. Also, the head is relatively small in proportion to the body. When Northwestern Garter Snakes have dark spots, the spots do not invade the dorsal stripe. Northwestern Garter Snakes do not have red spots or bars along the sides of the body although some red pigmentation may be present along the sides of individuals with a red stripe. Northwestern Garter Snakes have white specks on the edges of the dorsal scales, a trait our Common Garter Snakes do not have. In Washington, only Northwestern Garter Snakes will have a red vertebral stripe (locally called "red racers"), but this is one of the less common vertebral stripe color variations.

Striped Whipsnakes differ in being larger (adults greater than 1 meter in length), having smooth scales, 15 dorsal scale rows and they have a distinct pattern of dark and light colored stripes on the sides of the body. See Key Features Page.

Phenology

At low elevations, activity starts in March and continues into early November. After emergence from winter dens, snakes may remain in the vicinity of the overwintering site for two or more weeks until mating is complete and weather conditions are appropriate for dispersal. Northwestern Garter Snakes typically breed in spring after emergence in late March to early April and again in late September and early October. After mating, snakes disperse to summer foraging areas. In the lower Puget Sound area, female garter snakes of all three species are commonly found clustered in open grassy areas. Northwestern Garter Snakes give birth to their young rather than lay eggs. The young are born in late summer and early fall depending on location. In the lowland Puget Sound area, newborns (neonates) start to appear in late August and early September.

Range

Northwestern Garter Snakes occur primarily west of the Cascades Mountain crest in the Northwest Coast, Puget Trough and West Cascades ecoregions. Occurrences in the East Cascades Ecoregion are from the Cle Elum area in Kittitas County, northwestern Yakima County and western Klickitat County. The species may also cross into the Northern Cascade Ecoregion near Deming. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Northwestern Garter Snakes are the smallest and most terrestrial of our three garter snake species. They occur in open grassy areas, in forest openings and edges of coniferous forest. They are also common near water bodies. This species is a specialist on slugs and earthworms.

Garter snakes defend themselves by releasing the contents of their cloaca and musk glands then smearing this pungent foul smelling mixture over themselves and their attacker. Some will also regurgitate the content of their stomach and most will bite.

State Status Comments

This is a common species in western Washington. No declines have been reported at this time.

Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northern Salamander

Inventory and Research Needs

Observations can be submitted to the Washington Department of Fish and Wildlife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Photo vouchers highlighting the labial scales, as well as dorsal and ventral views are preferred.

Current or Recent Research in Washington

The authors know of no current research on this species.

Threats and Management Concerns

Over hunting or collecting, wanton killing, and destruction of overwintering sites can result in local declines. Road mortality is also a threat in areas where the snakes must cross to access overwintering or foraging habitat.

References

Fitch (1941), Nussbaum, et al. (1983), Rossman et al. (1996)

Hallock, L.A. and McAllister, K.R. 2009. Northwestern Garter Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: June 2009

Photos

Small adult (Grays Harbor County)

Key Features

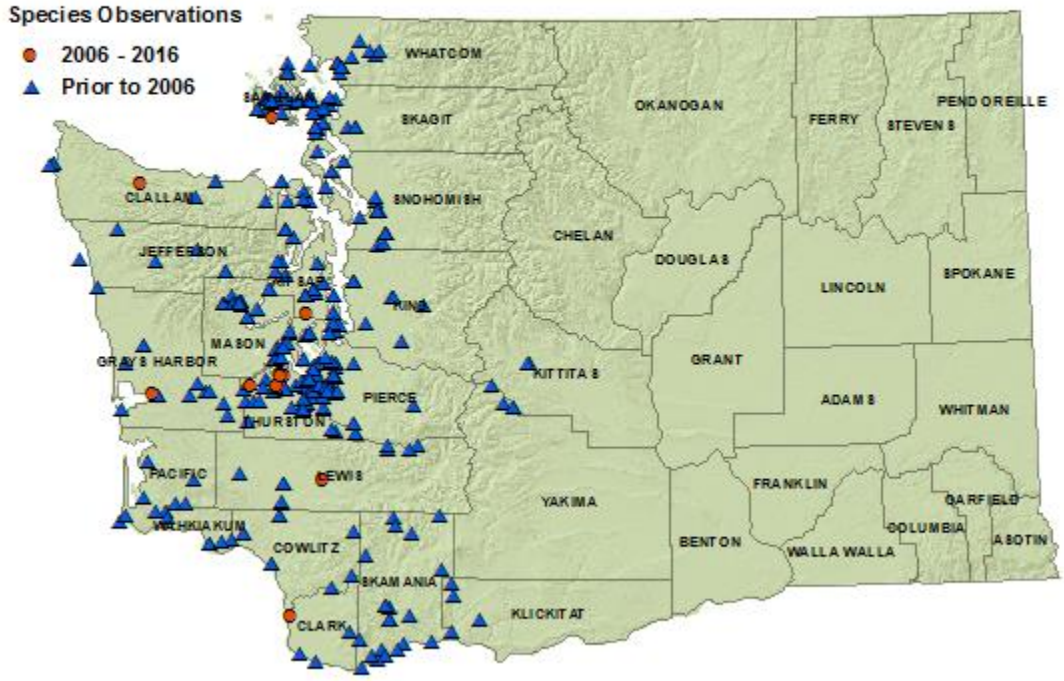
Small adult (Grays Harbor County)

Juvenile (Thurston County)

Ventral markings of a juvenile (Thurston County)

Distribution Map

Northwestern Garter Snake - Known Distribution



Amphibians List
Reptiles List

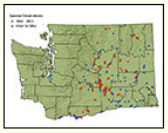
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt.

Racer

Contents:		Links:
Taxon, Status, and Ranks		Distribution Map

Taxon, Status, and Rank

Species	*Coluber constrictor*	Linnaeus, 1758
Family	Colubridae (Colubrids)	
Status	none	
State Rank	S5	
Global Rank	G5	



Species account for Washington and links are under construction.

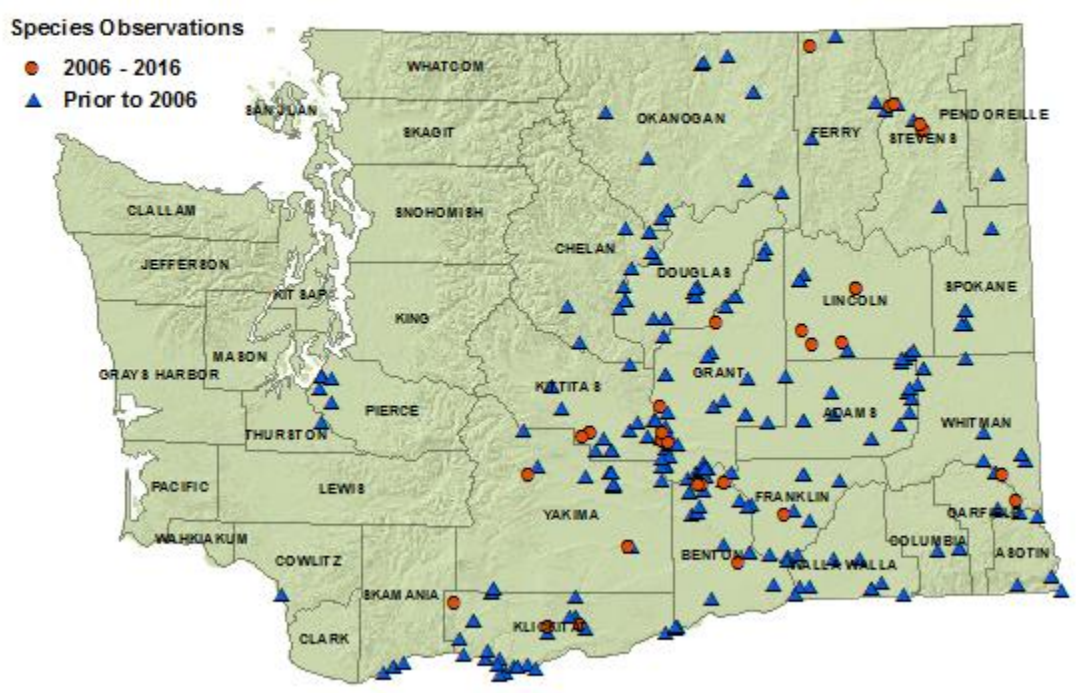
Some information on this species is available on NatureServe Explorer.

Hallock, L.A. and McAllister, K.R. 2005. Racer. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: October 2011

Distribution Map

Racer - Known Distribution



Ring-necked Snake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Pacific Giant Salamander
Pacific Tree Frog
Rough-skinned Newt
Tailed Frog
Van Dyke's Salamander
Western Toad
Reptiles:
Common Garter Snake
Gopher Snake
Night Snake
Northern Alligator Lizard
Northwestern Garter Snake
Painted Turtle
Racer
Rubber Boa
Ring-necked Snake
Rubber Boa
Sagebrush Lizard
Sharp-tailed Snake
Short-horned Lizard
Side-blotched Lizard
Skink
Western Fence Lizard
Western Pond Turtle
Western Rattlesnake
Western Skink
Western Terrestrial Garter Snake
Wandering Garter Snake
Western Toad
Western Yellow-bellied Racer
Yellow-bellied Racer

Ring-necked Snake

Taxon, Status, and Rank

Species	*Diadophis punctatus* (Linnaeus, 1766)
Family	Colubridae (Colubrids)
Status	none
State Rank	S3S4
Global Rank	G5

General Description

This is a small, dark snake with shiny scales and an orange band or "ring" around the neck. The underside is bright orange. In the Northwest, they rarely exceed 55 cm in total length. The dorsal coloration is slate gray to greenish gray. The bright orange ventral scales have scattered black spots. The orange ventral coloration darkens to red under the tail. Scales are smooth with 15 rows of dorsal scales at mid-body. Pupils are round. Juveniles resemble adults. No obvious external features distinguish males from females. See Photos Page.

Identification Tips

There are no other snakes in Washington with this distinctive coloration. See Key Features Page.

Phenology

Little is known about this secretive snake in Washington. The Washington Department of Fish and Wildlife Herp database contains records that indicate they have been found active in March at Camas, Clark Co. (1951) and as late as October 26 on the south side of Cowiche Mtn., Yakima Co. (1991).

Range

The main distribution in Washington follows the east slope of the Cascade Mountains from the Ellensburg area south to the Columbia Gorge and west to Longview. They also occur along the eastern portion of the Snake River. Distribution is likely continuous between the Klickitat and Yakima county records but there are no records in the WDFW herp database to support this. Isolated records of individual snakes are known from Colfax, Whitman County (1937, 1938); McNary National Wildlife Refuge, Walla Walla County (1975); and two locations in Cowlitz County: Kalama (1959) and at the confluence of Mill Creek and Columbia River (1982). See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Habitat association studies have not been done in Washington. Based on collection and observation records, Ring-necked Snakes occur in ponderosa pine- Oregon white oak, mixed forest and shrub-steppe. Occurrences in shrub-steppe are often associated with riparian areas. Ring-necked Snakes are secretive and rarely surface active during the day. They are usually found by searching under woody debris, rocks or on roads at night.

State Status Comments

The current rank is based on the assumption that Ring-necked Snakes are more common than current records indicate because 1) it is difficult to find small, secretive snakes, 2) the records are primarily from opportunistic encounters not systematic surveys, and 3) they occupy a variety of habitat types suggesting they are able to adapt to a variety of habitat conditions. Current status of populations along the Snake River is unknown because all records are more than 20 years old. Lack of records is assumed to be due to lack of survey work and not actual decline of the species.

Inventory and Research Needs

All observations should be submitted to the WDFW herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Of particular interest are observations from the Snake River area and observations that occur outside the known distribution. Basic life history and habitat information pertaining to Washington occurrences are also needed.

Current or Recent Research in Washington

None

Threats and Management Concerns

At this time, little is known about factors that may threaten populations. Down woody debris, fractured rock, and loosely compacted rock are generally considered important for maintaining this species. However, St Johns (2002) describes finding them under coverboards placed in an area with no natural woody debris or rocks.

References

Nussbaum et al. (1983), St. Johns 2002

Hallock, L.A. and McAllister, K.R. 2005. Ring-necked Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

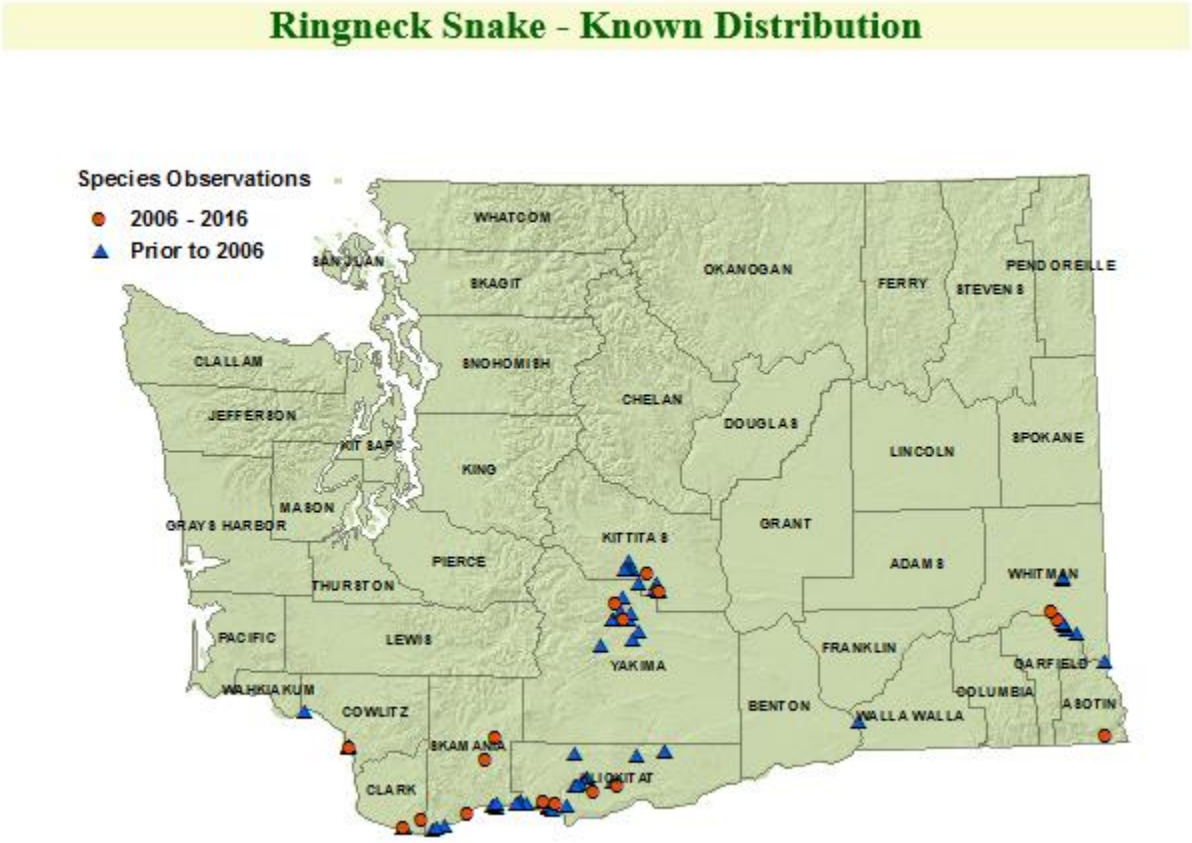
Photos

Adult (Skamania County)

Key Features

Adult (Skamania County)

Distribution Map



Sharp-tailed Snake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Sharptail Snake

Taxon, Status, and Rank

Species	*Contia tenuis* Baird and Girard
Family	Colubridae (Colubrids)
Status	State Candidate
State Rank	S3
Global Rank	G5

General Description

This is a small snake, usually less than 30 cm in total length and rarely exceeding 40 cm. It is reddish brown above with indistinct reddish dorsolateral stripes. The ventral scales are distinctively marked with alternating bands of white and black ending at the caudal scales. The tail ends in a sharp spine. Scales are smooth with 15 rows of dorsal scales at mid-body. Pupils are round. Young snakes are redder in coloration and have more distinct lines down the sides than adult snakes. See Photos Page.

Identification Tips

The Sharptail Snake is the only snake in Washington with a spine at the tip of the tail and alternating bands of white and black on the ventral scales. The tail spine is occasionally absent due to injury. See Photos Page.

Phenology

Little is known about this secretive snake in Washington. Activity apparently begins shortly after snow has melted in late March or early April. Sharptail Snakes are surface active when conditions are moist and retreat underground when surface conditions are dry. Based on observation of aggregations in the spring, breeding takes place in April or May. Eggs are laid in late June or July and hatching occurs in the fall.

Range

Sharptail Snakes have been verified from twelve disjunct areas of the Puget Trough, Eastern Cascades and Columbia Plateau ecoregions. They have been documented from the following areas and counties: Chumstick Creek in Chelan Co.; Cle Elum, Taneum Creek, Thorp and Yakima Canyon in Kittitas Co.; Umtanum Creek and Terrace Heights in Yakima Co.; Canyon Creek, Lyle, Trout Lake and Bear Creek in Klickitat Co.; and Gravelly Lake in Pierce Co.

The type specimen was collect by the U.S. Exploring Expedition in 1858 from the "Puget Sound Region." The only verified Puget Trough sightings are from Gravelly Lake, where specimens were collected in 1939, 1945 and 1949. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

This species is usually found in or under decaying woody debris or rocks in seasonally moist habitats. Most sites in Washington occur near lakes, ponds, creeks or rivers. The habitat usually consists of well-exposed, south-facing slopes on the edge of forests. This snake may feed exclusively on slugs, although slugs appear to be uncommon in some areas where extant Washington populations are found. Dietary information is based on the long, recurved dentition and a study that found only slugs in 6 of 23 snakes examined from Oregon.

State Status Comments

Factors that suggest this species is at risk include 1) the small number of known populations, 2) the distance between known populations, 3) the limited geographic extent of the populations, and 4) the apparently small size of the populations. However, this species is also difficult to find due to its small size, cryptic coloration and fossorial habitats, therefore the species may be more common than the documented occurrences indicate. The rank will be re-evaluated as more observations are reported.

Inventory and Research Needs

Inventory is needed, especially in areas of historical occurrence in western Washington. Any sightings that occur outside the known distribution should be reported to the Washington Department of Fish and Wildlife. The factors that limit survival for this species need to be better understood. Little of what is known about the species explains its rarity.

Threats and Management Concerns

Any land use that impacts the moisture regimes or the permeability of the habitat would likely be detrimental to this species. Down woody debris, fractured rock, and loosely compacted rock or talus may be important for maintaining this species and should not be removed from areas where this snake is known to occur.

Current Research

In the course of his Master's research on the ecology of Night Snakes in Washington, Robert Weaver (a Central Washington University graduate student), has found Sharptail Snakes at historic and new locations, primarily in the Yakima River drainage between Ellensburg and Yakima. Based on the 14 Sharptail Snakes he found between 2003-2004 at Taneum Creek (4 snakes), in the Thorp area (2 snakes), in the Yakima Canyon (5 snakes) and in the Terrace Heights area, he thinks Sharptail Snakes may be fairly common in these portions of Kittitas and Yakima counties.

References

Cook (1960), Leonard et al. (1996), Leonard and Leonard (1998), Leonard and Ovaska (1989), Nussbaum et al. (1983), Stebbins (1985), Storm and Leonard (1995), Zweifel (1954).

Personal Communications: W. Leonard, R. Weaver

Hallock, L.A. and McAllister, K.R. 2005. Sharptail Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos and Key Features

Sharptail Snake

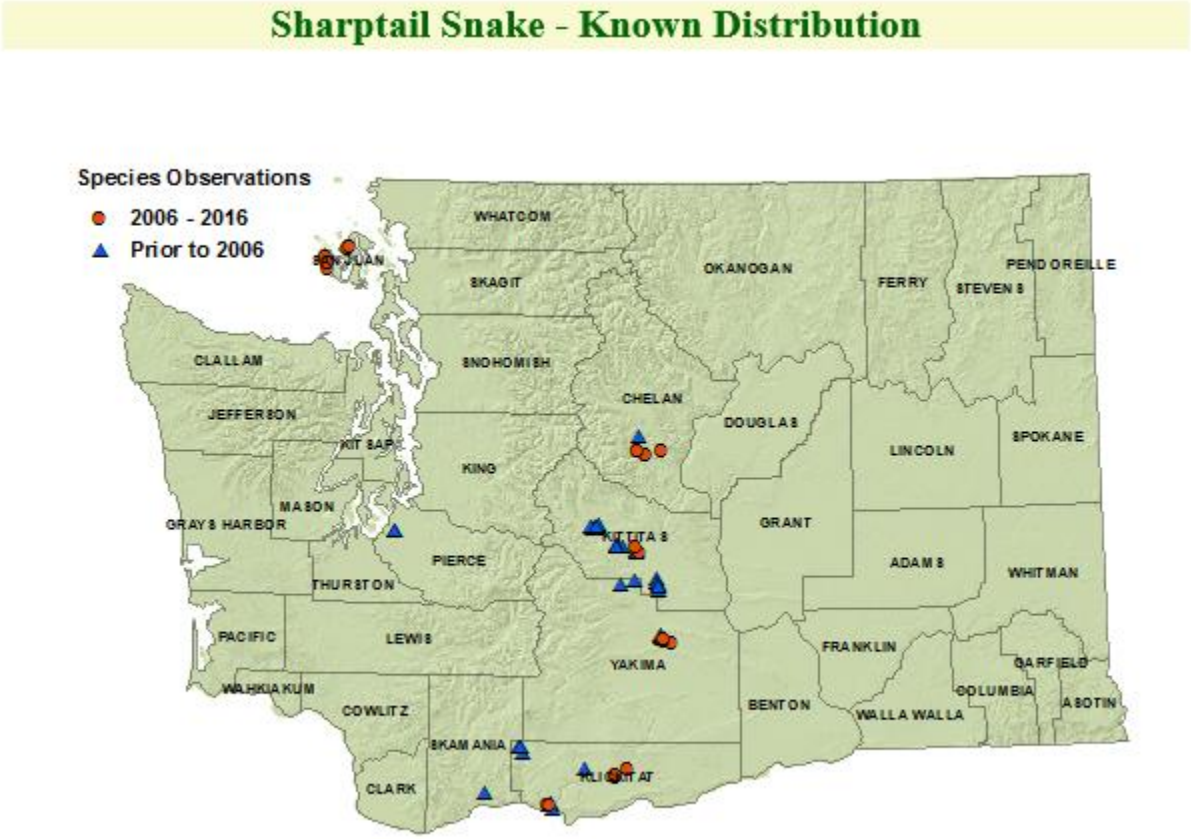
Adult (Kittitas County)

Hatchling (Klickitat County)

Close-up of tail showing spine-like tip

Sharptail Snake habitat (Klickitat County)

Distribution Map



Striped Whipsnake

Amphibians List
Reptiles List

Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent

Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic

Striped Whipsnake

Taxon, Status, and Rank

Species	*Masticophis taeniatus* Hollowell
Family	Colubridae (Colubrids)
Status	State Candidate
State Rank	S1
Global Rank	G5

General Description

This is a long slender snake that is dark above with alternating light and dark stripes down the length of the body. Adults range in size from 90 to 180 cm total length. The belly is white and the underside of the tail is pinkish or coral colored. The eyes are large and the pupil is round. The scales are smooth with 15 rows at mid-body. See Photos Page.

Identification Tips

The only other large striped snakes in Washington are the garter snakes. The Striped Whipsnake differs from these in having smooth scales, 15 dorsal scale rows, and a dark mid-dorsal area between the lateral stripes. See Key Features Page.

Phenology

No research has been done on the Striped Whipsnake in Washington. Activity probably begins in early April, similar to other snakes in the Columbia Basin. They are active during the day. Based on studies from other states, mating occurs shortly after emergence from hibernation, eggs are laid in July, incubation takes approximately 50-58 days, and young hatch in late summer and fall. They overwinter communally with other snake species and use the same hibernaculum every year.

Range

Striped Whipsnakes occur in the Columbia Plateau Ecoregion. They have been documented from Yakima, Kittitas, Grant, Benton, Franklin, Lincoln and Walla Walla counties. Most observations have been in Grant County near the Columbia River between Vantage and Mattawa. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Little is known about the habitat requirements in Washington. The areas of Grant County where they occur have relatively undisturbed shrub-steppe habitat with a low cover of cheatgrass.

State Status Comments

Striped Whipsnakes have been documented in Washington only 26 times. In the last decade, only 3 observations have been reported.

Inventory and Research Needs

All sightings of this species should be reported to the Washington Department of Fish and Wildlife. Information on current distribution and status are needed, as well as life history information.

Threats and Management Concerns

Conversion of occupied shrub-steppe habitat to agricultural lands, or other uses, is the primary threat to this species. Destruction of hibernacula is also a threat.

Current Research

The Washington Natural Heritage Program (L. Hallock), in cooperation with the WDFW and BLM, plans to investigate habitat use and relative abundance of a population in Grant County starting in 2005.

References

Nussbaum et al. (1983), Parker and Brown (1973), Stebbins (1985), Storm and Leonard (1995).

Hallock, L.A. and McAllister, K.R. 2005. Striped Whipsnake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: February 2005

Photos

Striped Whipsnake

Adult (Grant County)

Adult (Grant County)

Overwintering habitat, Grant County

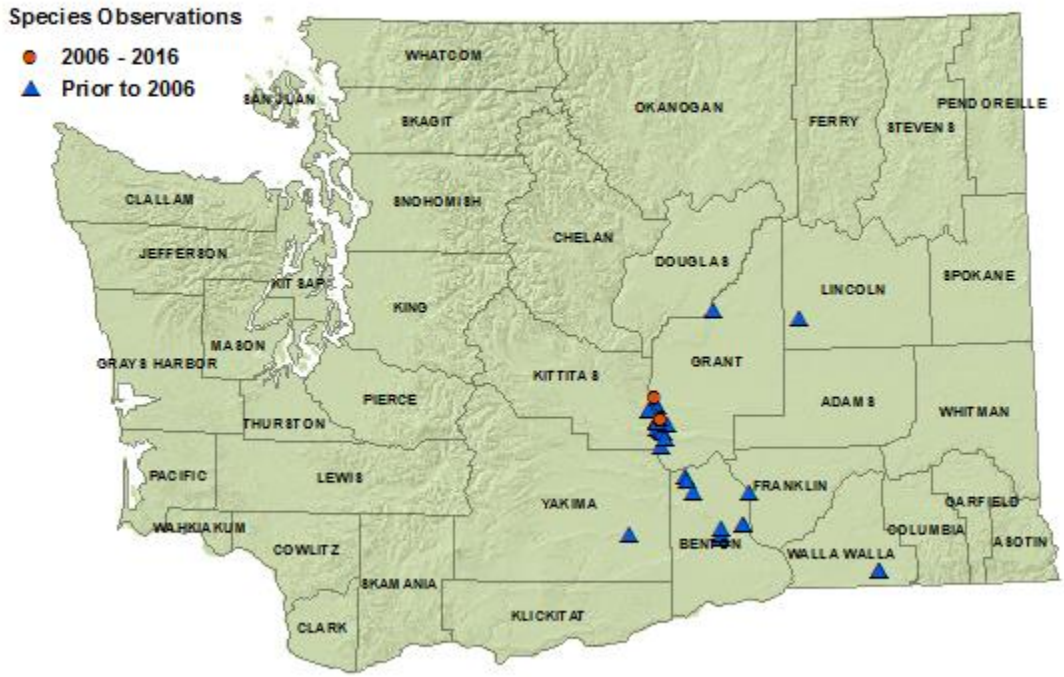
Key Features

Adult (Owyhee County, Idaho)

Underside of adult showing pink coloration on tail (Grant County)

Distribution Map

Striped Whipsnake - Known Distribution



Western Terrestrial Gartersnake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog

Western Terrestrial Garter Snake

Taxon, Status, and Rank

Species	*Thamnophis elegans*	(Baird and Girard, 1853)
Family	Colubridae (Colubrids)	
Status	none	
State Rank	S5	
Global Rank	G5	

Washington's three garter snake species are similar in appearance and have coloration and patterns that vary regionally and by individual. Correct identification requires consideration of all traits including scale counts, color and pattern. Although little appreciated, these are beautiful snakes with many stunning color variations.

General Description

This is a medium-sized gray to brown snake with stripes and small spots. Typically three stripes are present: a thin vertebral stripe and two thin lateral stripes. The stripes are yellow or cream colored. The lateral stripes are on the 2nd and 3rd scale rows. The small dark spots occur in two alternating rows between the vertebral stripe and lateral stripes. The upper spots invade the vertebral stripe. The belly is gray with black pigment concentrated along the mid-belly. The subspecies (*T.e. vagrans*) that occurs in Washington grows to 97 cm (38 in) total length. The pupil is round. The scales are keeled and there are usually 19 or 21 rows at mid-body, 8 scales line the upper jaw (labial scales) and 10 scales line the lower jaw.

Variation: The mid-dorsal stripe may be indistinct, absent or incomplete in some individuals. The lateral stripes may be indistinct. Some individuals appear more spotted than striped. Melanistic forms have been observed in Washington. Coloration of this species in the Columbia Basin tends to be rather dull in comparison with populations in western Washington. See Photos Page.

Identification Tips

Differences in scale counts are important for distinguishing the garter snakes. Western Terrestrial Snakes typically have 19 or 21 scales at mid-body, 8 upper labial scales and 10 lower labial scales.

In Western Washington, spotted forms of the Northwestern Garter Snake look similar to Western Terrestrial Garter Snake. The scale counts differ with the Northwestern Garter Snake having 17 scales at mid-body (occasionally 19), 7 upper labial scales and 8 or 9 lower labials. Also, the dorsal spots do not invade the vertebral stripe. Overall, the Northwestern Garter Snake is a smaller snake and has a relatively small head.

In Washington, Common Garter Snakes have 7 upper labials and no dark spotting on the dorsal surface. Throughout eastern Washington and parts of western Washington, the Common Garter Snake has red blotches on the sides of the body above the lateral stripe. In the Puget Sound area, where Common Garter Snakes lack red side blotches, they usually have white blotches on the skin between the scales above the lateral stripes. It may be necessary to separate the scales to see this trait.

Striped Whipsnakes differ in being larger (adults greater than 1 meter in length), having smooth scales, 15 dorsal scale rows and they have a distinct pattern of dark and light colored stripes on the sides of the body. See Key Features Page.

Phenology

At low elevations, activity starts in March and continues into early November. Snakes may remain in the vicinity of the overwintering site for two or more weeks until mating is complete and weather conditions are appropriate for dispersal.

Breeding takes place in spring after emergence in late March to early April. Fall courtship activities have been observed in early September in British Columbia. After mating, snakes disperse to summer foraging areas. Migrations of up to 3 km have been documented. Once snakes reach their foraging areas, movement distances decline again.

In the lower Puget Sound area, female garter snakes of all three species are commonly found clustered in open grassy areas near water bodies. Aggregations of as many as 20 individual gravid female Western Terrestrial Garter Snakes have been observed in other parts of the range. Western Terrestrial Garter Snakes give birth to their young rather than lay eggs; the young are born in late summer and early fall depending on location. In the lowland Puget Sound area, newborns start to appear in late August and early September. Starting in September, the snakes migrate back to their overwintering locations.

Range

Western Terrestrial Garter Snakes have been documented in all Washington ecoregions. Occurrences in the Northwest Coast, West Cascades and North Cascades ecoregions are uncommon.

Only one occurrence has been documented in the North Cascades Ecoregion. Collected in 1920, this specimen is in the US National Museum collection. Because of the convoluted taxonomic history of *T. elegans*, this specimen should be examined to verify that is not the Northwestern Garter Snake (*T. ordinoides*). See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Habitat and Habits

Contrary to their name, Western Terrestrial Garter Snakes are almost always found near water in Washington. This is especially true in the Columbia Basin where populations are restricted to aquatic areas due to the xeric conditions of the uplands. These snakes have been observed along ponds, wetlands, lakes, stream edges, irrigation canals and rivers. Typically, they are found in grassy or shrubby areas on the edges of water bodies or in meadows and other openings nearby. Overwintering locations are terrestrial and can be far from foraging habitats. Many individuals use the same overwintering location. Overwinter habitats include rocky talus slopes, fractured bedrock, rock piles and roadsides.

Garter snakes defend themselves by releasing the contents of their cloaca and musk glands then smearing this pungent foul smelling mixture over themselves and their attacker. Some will also regurgitate the content of their stomach and most will bite. This can make handling garter snakes somewhat unpleasant.

Western Terrestrial Garter Snakes have toxic salivary secretions that may help immobilize prey. People have reported localized swelling from bites. These reports are infrequent and the toxins are not thought to be a serious problem for humans.

State Status Comments

This is a wide ranging and common snake species associated with water. No declines have been reported in Washington at this time.

Inventory and Research Needs

Observations can be submitted to the Washington Department of Fish and Wildlife WSDM database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Of particular interest are observations from the Northwest Coast, West Cascades and North Cascades ecoregions. Photograph vouchers should include photographs of 1) the head showing the labial scales, 2) the dorsal surface, and 3) the ventral surface.

Threats and Management Concerns

Over hunting or collecting, wanton killing and destruction of overwintering sites can result in local declines. Road mortality is also a threat in areas where the snakes must cross to access overwintering or foraging habitat.

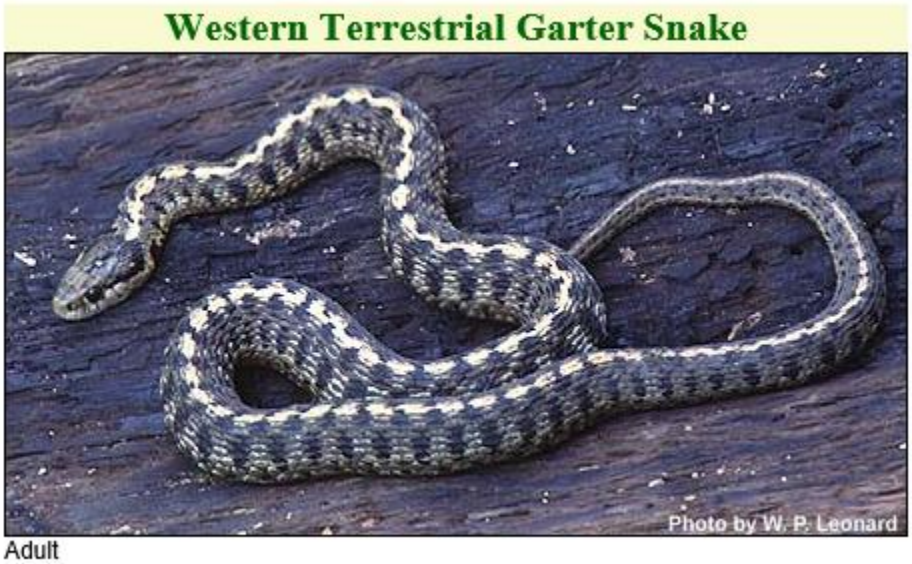
References

Jansen (1987). Nussbaum, et al. (1983); Rossman et al. (1996); Stebbins (2003); Storm & Leonard (1995)

Hallock, L.A. and McAllister, K.R. 2009. Western Terrestrial Garter Snake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

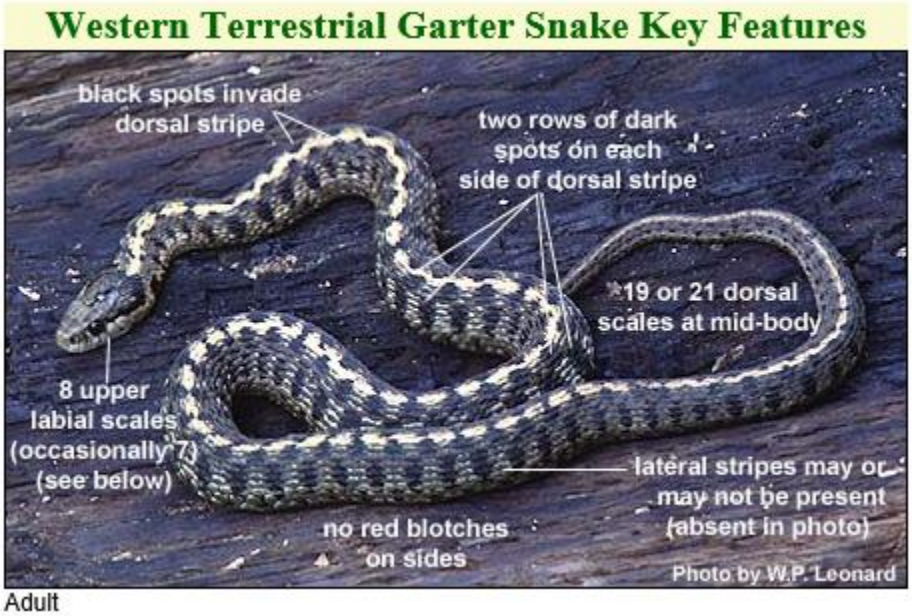
Last updated: June 2009

Photos



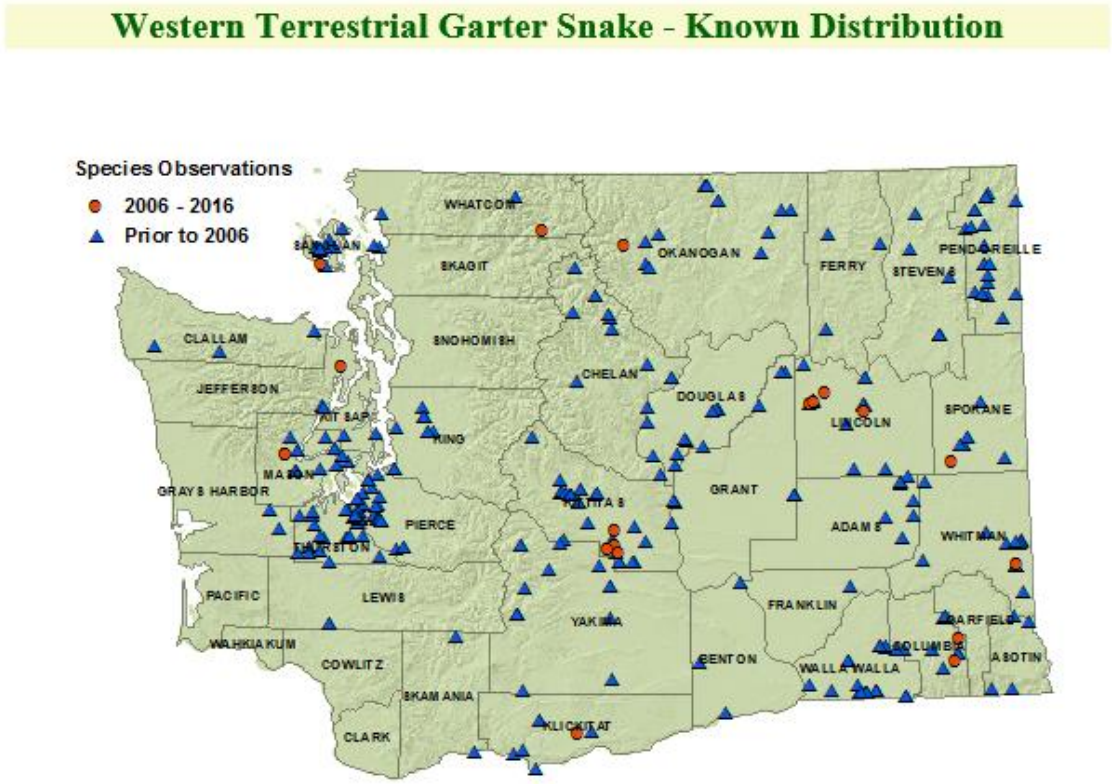
Adult

Key Features



Adult

Distribution Map



Western Rattlesnake

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent Salamander

Western Rattlesnake

Taxon, Status, and Rank

Species	*Crotalus viridis* (Rafinesque, 1818) = *Crotalus oreganus* (Holbrook, 1840)
Family	Viperidae (Pit Vipers)
Status	none
State Rank	S5
Global Rank	G5

Caution: This is a venomous and potentially dangerous snake. Rattlesnakes rarely strike unless harassed, handled or stepped on, but any encounter within the striking range could result in a bite.

General Description

This is a heavy-bodied snake with large dark spots, a wide triangular head, a distinct eye stripe, and a rattle at the tip of the tail. The largest rattlesnake measured in the Northwest was 150 cm (59 in.). Most adult snakes encountered in Washington are much smaller (around 2 ft. or 60 cm). The cryptic coloration of these snakes varies depending on habitat and substrate color. Typically it is some shade of brown or olive. The spots are dark brown and bordered by black and then white. Additional spotting occurs on the sides of the body. The dorsal spots fuse with the lateral spots on the tail to form bands. Ventral scales are white with dark blotches. The dorsal scales are strongly keeled and overlapping with 25 rows (range 23-29) at mid-body. The pupils are vertical and the scale above the eye is enlarged. Holes, called "pits," for reception of infrared heat are located on both sides of the face near the nostrils. Rattlesnakes bear live young. Recently born snakes (neonates) resemble adults but have more vivid coloration and the rattle is limited to a single, silent, horny segment called a "button." An additional button is added with each shedding. No obvious external features distinguish males from females. See Photos Page.

Identification Tips

The Western Rattlesnake is the only snake in Washington with a rattle and facial pits.

The Gopher Snake (Pituophis catenifer) is often misidentified as a rattlesnake because the two species have similar markings and defensive behavior. Gopher Snakes differ in their physical appearance by lacking a rattle and facial pits. They also have smaller, square, dorsal spots; oval pupils; a narrow eye stripe that extends both to the posterior edge of the jaw and below the eye; and scales that are less keeled.

Night Snakes (Hypsiglena torquata) resemble juvenile rattlesnakes but differ in lacking a rattle and facial pits. They also have smaller, more numerous dorsal spots that are not outlined in black and white, a pearly white belly with no other markings and smooth scales. See Key Features Page.

Phenology

In most of the Columbia Basin, rattlesnakes emerge from their overwintering sites (hibernacula or dens) in April. Activity is limited to the vicinity of the overwintering site for 2-3 weeks and then they disperse to their summer foraging areas. Reproduction takes place in the spring near the den site. Young start to appear in late August. Adults return to the overwintering sites starting in late September, although activity may continue until late October depending on location and temperatures.

Range

Rattlesnakes occur east of the Cascade Mountains in the East Cascades, Columbia Basin, Okanogan and Blue Mountain ecoregions. The furthest west they have been documented is in the Columbia Gorge approximately 1 mile west of Dog Mountain in Skamania County. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

In our state, Western Rattlesnakes primarily occur in shrub-steppe habitats but are also found in Oregon white oak, ponderosa pine and other open forest types. Talus and basalt rock outcroppings are used for overwintering.

Rattlesnakes are active during the day when temperatures are moderate but switch to nocturnal activity during the hottest months of the year. When not active, they shelter under shrubs and rocks.

State Status Comments

This species is common and widespread in eastern Washington but numbers in many areas have declined because of habitat loss, excessive hunting at den sites and destruction of den sites.

Inventory and Research Needs

Observations from areas not indicated on the map can be submitted to the WDFW herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Of particular interest are observations that occur outside the known distribution.

Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Current or Recent Research in Washington

Radio-telemetry studies by WA DNR Natural Heritage Program (Lisa Hallock) in Grant County and WA Department of Fish and Wildlife in Okanogan County (Scott Fitkin) were conducted in 2003 and 2004 to locate communal hibernacula.

Threats and Management Concerns

The main conservation concern for this species is excessive hunting and wanton killing of snakes emerging from hibernation, as well as destruction of communal den sites. Both can result in local population declines and even local extirpation.

References

Ashton & Queiroz (2001), Klauber (1956), Hallock (1998, 2004), Pook et al. (2000), Prior and Weatherhead (1996)

Personal communications: Scott Fitkin

Hallock, L.A. and McAllister, K.R. 2005. Western Rattlesnake. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos

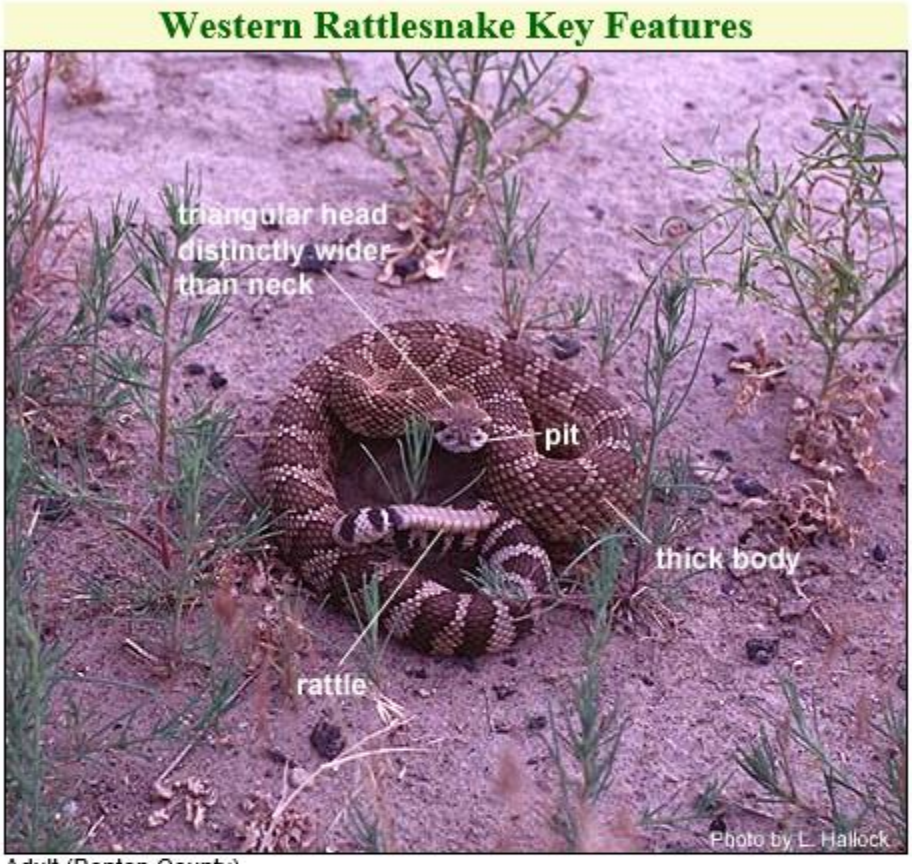
Western Rattlesnake

Adult (Benton County)

Adult (Grant County)

Typical overwintering habitat (Douglas County)

Key Features



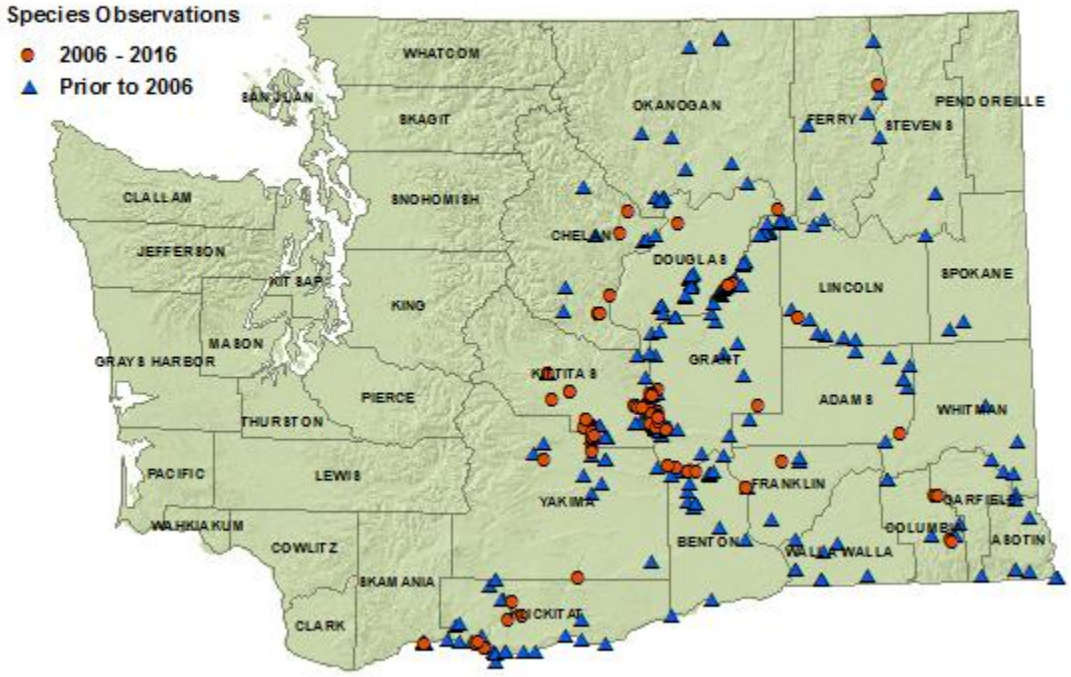
Adult (Benton County)

Rattle (Douglas County)

Button of a neonate (Grant County)

Distribution Map

Western Rattlesnake - Known Distribution



Rubber Boa

Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Amphibians List
Reptiles List
Amphibians:
Bullfrog
Cascade Torrent Salamander
Cascades Frog
Coastal Tailed Frog
Columbia Spotted Frog
Columbia Torrent Salamander
Cope's Giant Salamander
Dunn's Salamander
Ensatina
Great Basin Spadefoot
Green Frog
Larch Mt. Salamander
Long-toed Salamander
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander
Olympic Torrent
Northern Leopard Frog
Northern Red-legged Frog
Northwestern Salamander

Rubber Boa

Taxon, Status, and Rank

Species	*Charina bottae*	(Blainville, 1835)
Family	Boidae (Boas)	
Status	none	
State Rank	S4	
Global Rank	G5	

General Description

This is a thick-bodied snake with small eyes, tiny scales and a blunt tail that is similar in appearance to the head. In the Northwest, they rarely exceed 60 cm total length. The dorsal surface is uniformly tan, brown, olive, gray, charcoal or rosy pink. The underside is yellow or cream and may have dark mottling. Scales are smooth with 39 to 53 rows of dorsal scales at mid-body. The ventral scales are reduced in size as compared to most snakes. Pupils are vertical. Vestigial legs are present as external spurs located on both sides of the vent in males and occasionally in females. Females are larger (up to 830 mm) than males and the spurs, when present, are much smaller. Scars are common along the body and tail. Juveniles resemble adults but are pinkish in coloration. See Photos Page.

Identification Tips

The Rubber Boa is sometimes confused with the Racer (Coluber constrictor) because both species have similar coloration. Racers differ in having large eyes, large dorsal scales and a tail that tapers to the tip. Racers are fast, aggressive snakes that will strike and bite if cornered or handled whereas Rubber Boas are slow, non-aggressive snakes that are easily captured and handled. See Key Features Page.

Phenology

Surface activity at overwintering locations starts in March. Activity continues through October. Rubber Boas have not been studied in Washington. Breeding in other areas of the Northwest takes place in April and May. Rubber Boas give birth in the fall to 2 to 8 young.

Range

Rubber Boas are found in all Washington ecoregions. Few records have been submitted for the coastal forests, higher elevations of the Cascade Mountains or the central Columbia Basin. See Distribution Map.

For information on the complete range of this species, see NatureServe Explorer.

Habitat and Habits

Rubber Boas are found in a variety of habitats including prairies, shrub-steppe, grasslands and forests of various types. Their distribution is patchy in Washington. They are common in some areas and apparently absent from others. The wet, dense forests of the Pacific Coast Ecoregion and the dry, shrub-steppe habitats of the central Columbia Basin are not considered typical Rubber Boa habitat, but Rubber Boas have been found in both.

Rubber Boas are active at night and spend much of their time below ground. They are usually found by turning woody debris and rocks or by searching roads at night. It is often possible to return to the same site year after year and find them or their shed skins.

State Status Comments

The current rank is based on the assumption that Rubber Boas are more common than current records indicate because 1) it is difficult to find nocturnal, semi-fossorial snakes, 2) the records are primarily from opportunistic encounters and not systematic surveys, and 3) they occupy a variety of habitat types suggesting they are able to adapt to a variety of habitat conditions.

Inventory and Research Needs

Observations from areas not indicated on the map can be submitted to the WDFW herp database by contacting Lori Salzer by E-mail salzeljs@dfw.wa.gov. Of particular interest are observations from the Columbia Basin and Pacific coastal areas and observations that occur outside the known distribution. Basic life history and habitat information pertaining to Washington occurrences is also needed.

Current or Recent Research in Washington

None.

Threats and Management Concerns

At this time, little is known about factors that may threaten populations. Down woody debris, fractured rock, and loosely compacted rock are generally considered important for maintaining this species. Protection of overwintering sites may be important for sustaining local populations.

References

Nussbaum et al. (1983)

Hallock, L.A. and McAllister, K.R. 2005. Rubber Boa. Washington Herp Atlas. http://wdfw.wa.gov/conservation/herp_atlas/

Last updated: December 2005

Photos

Rubber Boa

Adult (Kittitas County)

Adult (Okanogan County)

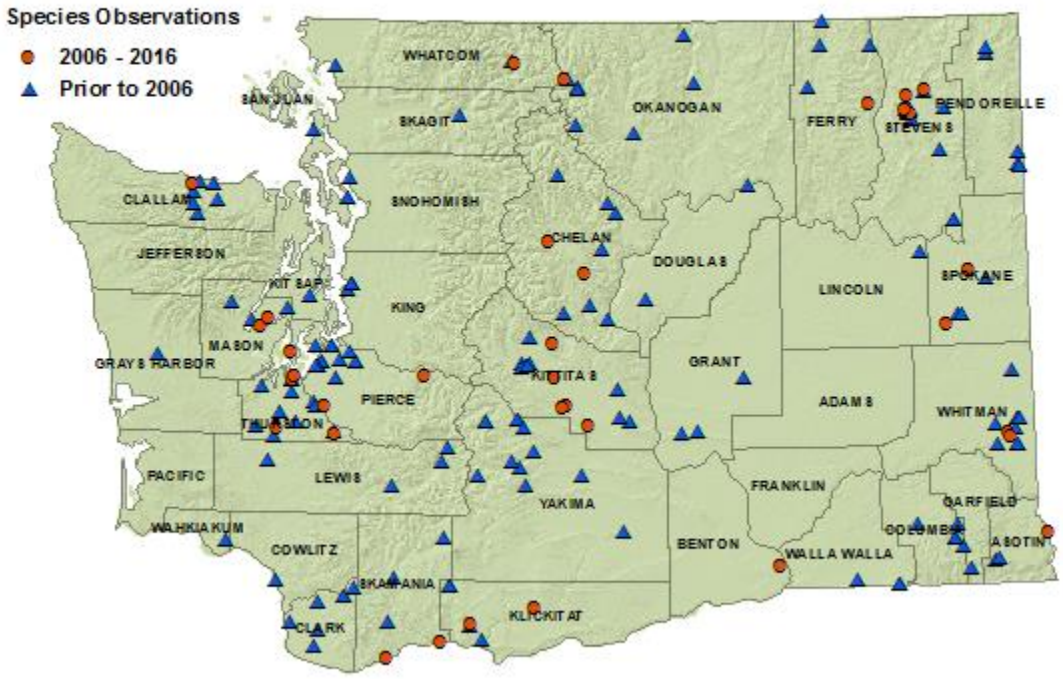
Key Features

Adult (Kittitas County)

Adults (Klickitat County)

Distribution Map

Rubber Boa - Known Distribution



References and Literature Cited

cooperators:

WA Dept. of Natural Resources

Bureau of Land Management Spokane District

WA Dept. of Fish & Wildlife

U S Forest Service

References and Literature Cited

Links: **References** **Personal Communications**

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Washington Herp Atlas, 2009. Washington Natural Heritage Program, Washington Dept. of Fish & Wildlife, U.S.D.I. Bureau of Land Management and US Forest Service

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Last updated: June 2009
