

ARIZONA WILDLIFE CONSERVATION

ARIZONA WILDLIFE NOTEBOOK



GARRY ROGERS



Lee Ashford writes:

“Arizona Wildlife Notebook” by Garry Rogers is a comprehensive checklist of wildlife species existing in the state of Arizona. This Notebook provides a brief description for each of 11 groups of wildlife, the conservation status of each extant species within that group in Arizona, an alphabetical listing of species by common name, scientific names, and room for notes.

“The Notebook is a statewide checklist, intended for use by wildlife watchers all over the state. As various individuals keep track of their personal observations of wildlife in their specific locality, the result will be a more selective checklist specific to that locale. Such information would be vitally useful to the State Wildlife Conservation Department, as well as to other local agencies and private wildlife watching groups.

“This is a very well-documented snapshot of the status of wildlife species – from bugs to bats – in the state of Arizona. Much of it should be relevant to neighboring states, as well, with a bit of fine-tuning to accommodate additions and deletions to the list.

“As a retired Wildlife Biologist, I have to say Rogers’ book is perhaps the simplest to understand, yet most comprehensive in terms of factual information, that I have ever had occasion to peruse. This book should become the default checklist for Arizona’s various state, federal, and local conservation agencies, and the basis for developing accurate local inventories by private enthusiasts as well as public agencies.

“‘Arizona Wildlife Notebook’ provides a superb starting point for neighboring states who may wish to emulate Garry Rogers’ excellent handiwork. I wish I’d had access to something as comprehensive, yet simple, many years ago.”

Arizona Wildlife Notebook: *Checklists and Conservation Status*

By

Garry Rogers

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Learn more and get updates for the species lists in this Notebook at <http://GarryRogers.com>.

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Cover photograph: With a wingspan up to 5 inches, the majestic *Papilio multicaudata* (Two-tailed Swallowtail) earns its place as Arizona's official state butterfly. Often seen near streams and sometimes along city streets throughout the western United States, this butterfly is unmistakable because of its large, bright yellow wings and the two black tails on each hindwing. All photographs are by the author.

For my father

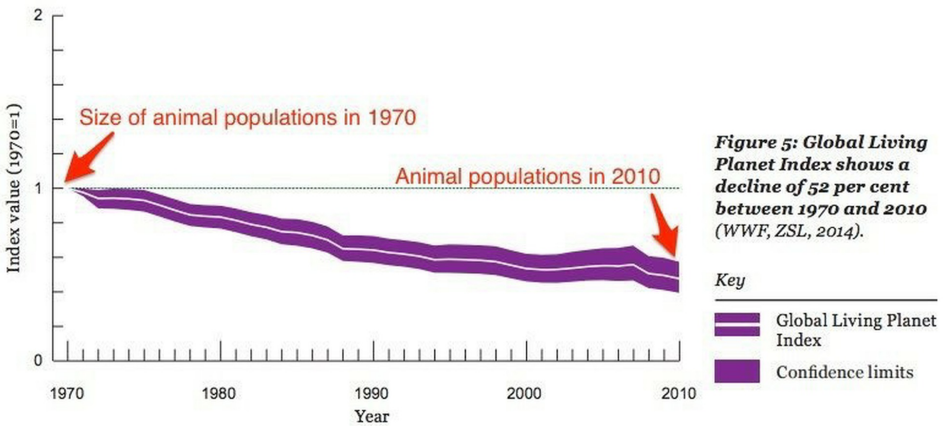
John Samuel Rogers

For sharing his interest in plants and animals.

Introduction

This year, 2015, lethal heat waves and storms are making it clear that humanity is changing the Earth—and it’s not just climate. Our massive population is destroying wildlife habitat and using resources faster than nature can replace them. People around the world are realizing that they are conducting a worldwide Holocaust that is killing billions of animals and plants. Research coming from many sources indicates that, during human recorded history, worldwide extinctions may have reached 7% (Régnier, 2015a, 2015b). This is 100 times faster than normal.

Extinction isn’t the only concern. Total extinction of a species usually results after years of decline. In 2014, the World Wildlife Fund, the Zoological Society of London, and other organizations published an extensive analysis of more than 10,000 wildlife studies. The analysis reached a stunning conclusion: The total number of animals on Earth has declined by more than 50% since 1970.



This figure from the review by the World Wildlife Fund (2014) shows that, from 1970 to 2010, Earth’s animals declined by 52%.

I have come to believe that nature conservation is the great challenge of our time. Human beings are imposing a mass extinction that will eliminate almost all animals on Earth. I believe that this Notebook will be useful for anyone wishing to accept the challenge and begin to work to protect Earth’s creatures.

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The Notebook’s Checklists

In 2005, I decided I needed a checklist in which to record, in one place, all the wild animal species that I saw. During the intervening 10 years, there were so many reports of wildlife decline that I became concerned with the protection of wildlife. The Arizona Game and Fish Department (AZGFD) publishes estimates of species conservation status. I added the estimates to the checklists. Now, when you see an animal, you will have expert opinions on that species’ health and prospects for survival.

Estimates of conservation status are often based on limited amounts of information, and can’t always be perfectly accurate. For instance, Brian Hubbs, a contributor to the Herpetological Education and Research Project (<http://www.naherp.com>), says that he and other observers have seen enough Milksnakes to conclude that the species is doing better than indicated by the conservation status rank given it by AZGFD. Although individual species might be doing better or worse than suggested by the AZGFD status estimates, those estimates are the best available.

This Notebook contains statewide checklists for 11 species groups. Though you will need several field guides to help with species identifications, you will need only this one book to keep a record of your species sightings.

The Notebook’s checklists have both common and scientific names alphabetized by common name. Finding a name in the lists can be tricky because the common name isn’t always what we think. For instance, Arizona’s two Robin species are not alphabetized in the bird checklist as Robins. They are alphabetized as “American Robin” and “Rufous-backed Robin.” Both species are easier to find in the index where they are listed as “Robin, American” and “Robin, Rufous-backed.” The index also includes both species by scientific name.

There isn’t much writing space in the checklists, but if you use the Notebook for a specific area, such as a yard, there is space to note at least 10 dates. I usually record only the first sighting date each year. Appendix A presents a long list of details you could record in a supplemental notebook. Please use it for critically imperiled species (conservation rank S1) and endangered species (rank LE and LT) that you find.

Species checklists are most useful when they cover small areas. Checklists for valleys, mountains, urban parks, and yards are ideal, but few are available. The species checklists in this Notebook cover the entire state of Arizona. Thus, you can use the Notebook to record species sightings anywhere in Arizona.

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Arizona Species Conservation Status

A truly rich mixture of animal species occupies Arizona's diverse habitats. Arizona ants, for example, include more species than any other state.

Wildlife biologists have observed the decline of many Arizona species. Each of the species checklists has conservation-status symbols in the right hand columns that indicate whether the species is declining or is in danger of decline. The information is from the October 10, 2013 list posted on the Internet by AZGFD (<http://azgfd.gov>). The table below shows the numbers of species in each group that AZGFD considers **critically imperiled (S1)**, **imperiled (S2)**, and **vulnerable (S3)**. It also shows U.S. Endangered Species Act (ESA) numbers for **threatened (LT)** and **endangered (LE)** species. Definitions of the symbols begin on page 10. The Notebook has butterfly, moth, damselfly, and dragonfly checklists, but those groups are not in this table because the status of most of their species is unknown.

The table shows the number of Arizona native species and the portion of those ranked S1, S2, and S3. For example, there are 31 native amphibians found in Arizona. Fifty-eight percent of them are vulnerable (S3) or worse (S1 or S2). Six percent have received protection under the ESA.

ARIZONA WILDLIFE CONSERVATION STATUS			
Species Group	Arizona Native Species	AZGFD S1+S2+S3	ESA LT+LE
Amphibians	31	18 (58%)	2 (6%)
Birds	451	260 (58%)	9 (2%)
Fish	40	40 (100%)	13 (33%)
Lizards	67	27 (40%)	0 (0%)
Mammals	189	64 (34%)	15 (8%)
Snakes	76	35 (46%)	1 (1%)
Turtles	10	6 (67%)	2 (20%)
TOTAL	864	450 (52%)	42 (9%)

Conservation Status Symbols

AZGFD and the U.S. Fish and Wildlife Service (FWS) define the conservation status symbols that I used. For more information, visit <http://azgfd.gov> and navigate to "WILDLIFE" (top menu bar), then under "Additional Wildlife Information" click "Heritage Data Management System (HDMS)m" and then click "Species Data Lists."

Symbols used by AZGFD

- **S1 Critically Imperiled:** Extremely rare or some factor(s) is making the species especially vulnerable to extinction. Typically five or fewer locations or very few remaining individuals (<1,000).
- **S2 Imperiled:** Rare or some factor(s) is making the species very vulnerable to extirpation. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000).
- **S3 Vulnerable:** Rare or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.
- **S4 Apparently Secure:** Uncommon but not rare, and usually widespread. Usually more than 100 occurrences* and more than 10,000 individuals. Possible long-term concern.
- **S5 Secure:** Common, widespread, and abundant. Safe under present conditions. Typically with considerably more than 100 locations and more than 10,000 individuals.
- **? Inexact or Uncertain:** Qualifies the character immediately preceding. Used alone to indicate there is insufficient information to assign a rank.
- **SA Accidental:** Not native.
- **SE Exotic Origin:** Not native.
- **SER State Exotic Reported:** Not native.
- **SHQ State Historical Report:** Taxonomy in question.
- **SH Possibly Extirpated (Historical):** Historically present, and there is some expectation that the species may be rediscovered.
- **SP State Potential:** Surveys needed to confirm presence.
- **SR State Reported:** Surveys need to confirm presence.
- **SRF State Reported Falsely:** Not present in state.
- **SRFSC State Reported Falsely, State Captive:** Present only in captivity.
- **SRX State Reported Extirpated or Extinct.**
- **SX Presumed Extinct:** Not located despite intensive searches, and virtually no likelihood that it will be rediscovered.
- **SXS#Q State Extirpated or Extinct:** State rank of # due to re-introduction; taxonomy in question.
- **SNR Unranked:** Status not yet assessed.
- **SU Unrankable:** Lack of information about status or trends.
- **S#S#** Indicates the range of uncertainty about exact status (e.g., S3S4).
- **SNA** Conservation status is not applicable because the species is not a suitable target of conservation activities *for one of the following reasons:*

- **Hybrid** Species represents an interspecific hybrid without conservation value. (Note that hybrids may be ranked if they do have conservation value).
- **E Exotic Origin:** Species is not native to AZ.
- **AN Accidental/Nonregular:** Species is not regularly found in AZ.
- **N Not Confidently Present:** Presence has been reported, but the report is unconfirmed.
- **No Definable Occurrences:** Species is native and appears regularly but lacks practical conservation concern in AZ because it is transient or occurs in a dispersed, unpredictable manner.
- **Synonym:** Species reported in AZ, but the state data center does not recognize the taxon; therefore, AZGFD does not assign the species a status.
- **Q Questionable Taxonomy:** Distinctiveness of this entity as a taxon is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with a lower-priority (numerically higher) conservation status rank.

Breeding Status Qualifiers

- **B Breeding:** Basic rank refers to the breeding population of the Element in the state. May be used in conjunction with an 'N' qualifier, to denote when taxon has both breeding and non-breeding populations in the subnation.
- **N Nonbreeding:** Non-breeding population in the state.
- **M Migrant:** Basic rank refers to the transient/migratory population of the Element in the subnation.

Note: A breeding status subrank is only used for animal species that have distinct breeding and/or non-breeding and/or migrant populations. A rank for any of the population segments may be assigned alone or may be coupled with one or both of the other segment ranks. In the latter case, a comma separates the ranks, with the higher priority rank listed first (e.g., S2B,S3N,S5M; S1B,S3N; SHN,S4S5B).

Symbols Used for the ESA by FWS

- **LE Listed Endangered:** Imminent jeopardy of extinction.
- **LT Listed Threatened:** Imminent jeopardy of becoming endangered.
- **PS Partial Status:** Listed Endangered or Threatened in part of range.
- **XN** Experimental nonessential population.
- **PDL** Proposed for delisting.
- **PD** Proposed for delisting.
- **No (No Status)** Certain populations of this taxon do not have designated status (check with state or regional USFWS office for details about which populations have designated status).
- **SAT Listed Threatened due to Similarity of Appearance.** This happens when a member of a non-listed population occurs within the

geographic area of a Distinct Population Segment for a listed species (e.g., a wintering bald eagle within the DPS for listed bald eagles).

- **PE** Proposed Endangered.
- **PT** Proposed Threatened.
- **C** **Candidate:** Species for which the USFWS has on file sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. Proposed rules for these species are precluded at present by other higher priority listing actions.
- **C*** Species for which FWS made a continued warranted-but-precluded finding on a resubmitted petition.
- **SC** **Species of Concern:** Describes the entire realm of taxa whose conservation status may be of concern to the U.S. Fish and Wildlife Service, but does not have official federal status.

References

I listed a few references to printed or Internet information in the introduction to each species group. If an Internet link fails, try going to the root directory and performing a search. For example, the location of the Endangered Species Act on the U.S. Fish and Wildlife Service website might change. To find it, go to <http://fws.gov> and search for Endangered Species Act.

AZGFD (Arizona Game and Fish Department): <http://AZGFD.gov>.

Nicholls, S. 2009. Paradise found: Nature in America at the Time of Discovery. University of Chicago Press, Chicago, IL. 524p.

Régnier, C., Bouchet, P., Hayes, K. A., Yeung, N. W., Christensen, C. C., Chung, D. J. D., Fontaine, B. and Cowie, R. H. (2015). Extinction in a hyperdiverse endemic Hawaiian land snail family and implications for the underestimation of invertebrate extinction. *Conservation Biology*. doi: 10.1111/cobi.12565

Régnier, C., Achaz, G., Lambert, A., Cowie, R.H., Bouchet, P., and Fontaine, B. (2015). Mass extinction in poorly known taxa. *Proceedings of the National Academy of Sciences of the United States*. doi: 10.1073/pnas.1502350112

U. S. Census Bureau: <http://census.gov>.

U. S. Endangered Species Act. 1973. The act and related laws are discussed at: <http://fws.gov/laws/lawsdigest/ESACT.html>.

U. S. Fish and Wildlife Service: <http://www.fws.gov>.

WWF. 2014. Living Planet Report 2014: Species and spaces, people and places. McLellan, R., Iyengar, L., Jeffries, B. and N. Oerlemans (Eds)]. WWF, Gland, Switzerland. 178 p. Online at www.worldwildlife.org.

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Amphibians

Arizona is home to 35 water-dependent frogs, toads, and salamanders. Many species occur in widely separated populations, and some of these are declining. For example, the Arizona Treefrog (*Hyla wrightorum*), the Arizona state amphibian, is stable over most of its range, but the population in the Huachuca/Canelo Hills in southern AZ is critically imperiled and is a candidate for ESA protection.



Amphibians endure severe human impacts worldwide. Habitat loss, invasions, toxic pollution, disease, and increasing shortwave solar radiation penetrating the atmosphere have placed them near the top of global conservation concerns.

Arizona amphibians are failing right along with their global relatives. The greatest threat to Arizona amphibians may be habitat loss. Arizona's growing human population is using water so fast that springs and streams are drying up.

The Arizona State Game and Fish Department reports that 58% of native amphibians are vulnerable to decline and extinction (state status S1–S3). Several species are protected or are being considered for protection according to the rules of the U.S. Endangered Species Act.

Amphibian Species Numbers

- World: 6,400
- U.S.: 230
- Arizona Total: 35
- Arizona Natives: 31
- Arizona Vulnerable (S1 to S3): 18 (58%)
- Arizona Possible Long-Term Concern (S1 to S4): 23 (74%)
- ESA Species Listed Endangered (LE): 1
- ESA Species Listed Threatened (LT): 1
- ESA Candidate Species (C): 1
- ESA Species of Concern (SC): 3

Arizona Amphibian References

- The Naturalist’s Bookstore has field guides and other references. <http://bit.ly/RKW2bC>. You will find field guides at the end of the category list.
- Amphibiaweb: <http://amphibiaweb.org/chytrid/chytridiomycosis.html>.
- AZGFD (Arizona Game and Fish Department): <http://AZGFD.gov>.
- Bishop, S.C. 1962. Handbook of salamanders. Hafner, NY, NY. 555 p.
- Brennan, T.C. 2008. Online field guide to reptiles and amphibians of Arizona: <http://reptilesfaz.com>.
- Global Amphibian Assessment: <http://globalamphibians.org>.
- Herpetological Education & Research Project: <http://www.naherp.com>. Numerous photographs of Arizona amphibians and reptiles.
- NBII. U. S. National Biological Information Infrastructure: <http://nbii.gov>.
- Southwest Partners in Amphibian and Reptile Conservation: <http://sw-parc.org>.
- Stebbins, R.C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin, Boston, MA. 279 p.
- U. S. Endangered Species Act. 1973. The act and related laws are discussed at: <http://fws.gov/laws/lawsdigest/ESACT.html>.
- U. S. Forest Service. 2007. Regional Forester’s list of sensitive animals: <http://www.fs.fed.us>. [The list keeps moving as it’s updated. You have to follow the link to the main page and use the search box to find “sensitive animals.”]

Arizona Amphibians Checklist

See page 10 for conservation status symbol definitions.

ARIZONA AMPHIBIANS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
African Clawed Frog	<i>Xenopus laevis</i>	SE1	
American Bullfrog	<i>Lithobates catesbeianus</i>	SE5	
Arizona Tiger Salamander	<i>Ambystoma mavortium nebulosum</i>	S5	
Arizona Toad	<i>Anaxyrus microscaphus</i>	S3S4	SC
Arizona Treefrog	<i>Hyla wrightorum</i>	S4	CDPS
Arizona Treefrog (Huachuca/Canelo)	<i>Hyla wrightorum</i> (<i>Huachuca/Canelo</i>)	S1	CDPS
Baja California Treefrog	<i>Pseudacris hypochondriaca</i>	S3,SE	

ARIZONA AMPHIBIANS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Barking Frog	<i>Craugastor augusti</i>	S2	
Boreal Chorus Frog	<i>Pseudacris maculata</i>	S5	
Canyon Treefrog	<i>Hyla arenicolor</i>	S5	
Chiricahua Leopard Frog	<i>Lithobates chiricahuensis</i>	S2	LT
Couch's Spadefoot	<i>Scaphiopus couchii</i>	S5	
Great Basin Spadefoot	<i>Spea intermontana</i>	S3	
Great Plains Toad	<i>Anaxyrus cognatus</i>	S5	
Green Toad	<i>Anaxyrus debilis</i>	S3	
Lowland Burrowing Treefrog	<i>Smilisca fodiens</i>	S2	
Lowland Leopard Frog	<i>Lithobates yavapaiensis</i>	S3	SC
Mexican Spadefoot	<i>Spea multiplicata</i>	S5	
Mogollon Rim Treefrog	<i>Hyla wrightorum (Mogollon Rim Pop)</i>	S4	
Northern Leopard Frog	<i>Lithobates pipiens</i>	S2	
Plains Leopard Frog	<i>Lithobates blairi</i>	S1	
Plains Spadefoot	<i>Spea bombifrons</i>	S4	
Red-spotted Toad	<i>Anaxyrus punctatus</i>	S5	
Relict Leopard Frog	<i>Lithobates onca</i>	S1	C
Rio Grande Leopard Frog	<i>Lithobates berlandieri</i>	SE3SE4	
Rocky Mountain Toad	<i>Anaxyrus woodhousii woodhousii</i>	S4	
Sonoran Desert Toad	<i>Incilius alvarius</i>	S3S4	
Sonoran Green Toad	<i>Anaxyrus retiformis</i>	S3	

Ants

Ants are a critical part of the Earth's terrestrial ecosystems. They consume and break down large amounts of material, they control the populations of many species, and they are food for many others. For instance, ants make up 40% of the diet of the Northern Flicker, a common Arizona bird. Despite being small and not so visible, ants account for 15% to 25% of all animal biomass on Earth's land surface—far more than any other animal group.

Despite their great numbers and vital behavior, we know very little about the lives and conservation status of most ant species. Now, with all life on Earth threatened by human multiplication, the need to study ants grows greater every day. If they disappear, ants will leave their mounds and tunnels, but no one will know how they lived and how they contributed to all life on Earth.

Arizona Ants

Arizona has more ant species than any other state. We do not know if Arizona's ants are declining along with the rest of the state's wildlife, but it seems likely. Our lack of ant information is surprising since wildlife scientists argue that ants should be at the center of conservation concerns. As E. O. Wilson points out in the foreword to a recent book on ant ecology (Alonso, 2010), "We have only begun to explore the full impact of ants on the natural ecosystems of the planet...."

Arizona's 300+ ant species occupy habitats ranging from the lowest desert areas to near the tops of the highest mountains. Harvester Ants (*Pogonomyrmex*, *Messor*, and *Pheidole*) live in most environments, but they are most abundant in warm desert areas. Carpenter (*Camponotus*) and Wood Ants (*Formica*) are more common in cooler uplands.

According to Stefan Cover and Bob Johnson (www.antweb.org/arizona.jsp), 12 of Arizona's ant species are not natives. Fire Ants from South America (*Solenopsis invicta*) have reached Arizona, but wildlife managers eradicated the only known colony. That is good because Fire Ants are highly destructive. They form large colonies that displace other ants, and alter habitats.

Ant Species Numbers

(Estimates from Wikipedia and AntWeb)

- World: 22,000
- U.S.: 700
- Arizona: 334 (322 natives)*

*I have seen larger numbers cited for Arizona, but the authors did not provide species lists.

Arizona Ant References

- Amazon's [Naturalist Bookstore](http://bit.ly/RKW2bC) has many ant books: <http://bit.ly/RKW2bC>.
- [Alex Wild's website](http://myrmecos.net/north-american-ants) has superb [ant photographs](http://myrmecos.net/north-american-ants): <http://myrmecos.net/north-american-ants>.
- Allred, D.M. 1982. Ants of Utah. *Great Basin Naturalist* 42: 415-511.
- Alonso, L.E. 2010. Ant conservation: Current status and a call to action. Chapter 4 in L. Lach, C.L. Parr, and K.L. Abbott. *Ant Ecology*. Forward by E.O. Wilson. Oxford University Press, New York, NY. 409 p.
- Antweb: www.antweb.org/arizona.jsp. Principal authors: Stefan Cover and Bob Johnson.
- Arizona-Sonora Desert Museum: http://www.desertmuseum.org/invaders/invaders_fireant.php
- Berenbaum, M. 2003. [A Stinging Commentary](#). *American Entomologist* 49: 68-69.
- Holldobler, B., and E.O. Wilson. 1990. *The ants*. Belknap Press, New York, NY. 746p.
- Johnson, R.A. 1996. Arizona ants. *Arizona Wildlife Views*, June 1996: 3-5.
- Schmidt, J. O. 1990. Hymenoptera venoms: striving toward the ultimate defense against vertebrates, pp. 387-419 in D.L. Evans and J.O. Schmidt, eds., *Insect defenses: adaptive mechanisms and strategies of prey and predators*. State University of New York Press, Albany, NY. NP
- Wilson, E. O. 2010. *Ant Hill*. Norton, New York, NY. 382 p.
- World Wildlife Fund. 2014. *Living Planet Report 2014*. <http://panda.org>.

Arizona Ant Checklist

The checklist includes families and subfamilies with space for the species you identify. The AntWeb website (www.antweb.org) provides a current list with pictures and descriptions. If you wind up on the AntWeb home page, go to "Regions, Nearctic" to find Arizona.

ARIZONA ANTS
Amblyoponinae (According to Barry Bolton on the Antweb site, this is mostly subterranean predator ant group.)
Cerapachyinae (ant predators.)
Dolichoderinae (cone or odorous ant.)

ARIZONA ANTS	
Ecitoninae ("army ant"—all species are nomadic predator ant)	
Ectatomminae (Antwiki <u>http://www.antwiki.org/Ectatomminae()</u> has a little information on this group)	
Formicinae (mound-building ant, carpenter ant, & honeypot ant)	
Myrmicinae (harvester ant, predator ant, and fungus-farmer ant)	
Ponerinae (predatory ant)	
Pseudomyrmecinae (arboreal ant)	

Notes:

Birds

Apart from domestic cats and dogs, birds are the most familiar species group. Even in cities, birds are a daily sight. Because we see them so often, birds are the best known and understood species group. We know more about their distribution, their numbers, and their health and stability than any other group.



Loggerhead Shrike

So, what do we know? One of the oldest and most familiar citizen-participation activities is the Audubon Society's Christmas Bird Count. Conducted at a steadily increasing number of locations for more than a century, the Bird Count has tremendous value for estimating species conservation status. A recent analysis of the Count's results show that many U.S. bird species have declined. Some of our most familiar bird species appear in current counts less than half as frequently as they were just 50 years ago. For example, over the past 50 years, sightings of Loggerhead Shrikes, a common Arizona species, declined by 72%. The Loggerhead Shrike in the photograph is the only one I have seen in 18 years of watching

at my location.

AZGFD wildlife biologists conclude that 58% of Arizona's native birds are declining. Another 20% are of possible long-term concern. The U.S. Endangered Species Act protects only 1% of Arizona bird species.

The reason for the declining numbers is not a mystery. Researchers have shown that the declines are due to human activities, chiefly:

- habitat destruction (building and farming),
- habitat harvests (logging, livestock grazing, and water diversion),
- habitat deterioration caused by introduced invasive plants, and
- habitat poisoning with pesticides and toxic wastes.

Bird Species Numbers

According to the information published by AZGFD, 551 bird species and subspecies occur in Arizona. Four hundred and fifty-one of these are regular residents.

- World: 10,000
- U.S.: 1,000
- Arizona Total: 551

- Arizona Birds Regularly Present: 451
- Arizona Regulars of Concern (S1 to S3): 260 (58%)
- Arizona Regulars of Possible Long-Term Concern (S4): 95 (21%)
- ESA Arizona Regulars Listed Endangered: 6 (1%)
- ESA Arizona Regulars Listed Threatened: 1 (<1%)
- ESA Arizona Regulars of Concern: 26 (6%)

Arizona Bird References

- The Naturalist's Bookstore has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.
- Alderfer, J., Ed. 2006. Complete Birds of North America. National Geographic Society, Washington, DC. 696 p.
- American Birding Association: <http://www.aba.org>.
- American Ornithologists' Union: <http://www.aou.org/>.
- ABC. AZ Bird Committee: <http://www.azfo.org>. Checklists : <http://www.mexico-birding.com/arizona/checklist.html>
- Arizona Field Ornithologists: <http://azfo.org>.
- Arizona Game and Fish Department: <http://azgfd.gov/>
- American Bird Conservancy: www.abcbirds.org.
- Audubon Society: <http://birds.audubon.org/common-birds-decline>.
- Corman, T.E., and C. Wise-Gervais. 2005. Arizona breeding bird atlas. University of New Mexico Press, Albuquerque, NM. 636 p.
- Gilmore, V. 2003. Birding Sedona and the Verde Valley. Northern Arizona Audubon Soc. Flagstaff, AZ.
- Partners in Flight: www.partnersinflight.org.
- Rosenberg, G.H., and D. Stejskal. 2002 (2nd Edition). The Arizona Bird Committee's field checklist of birds of Arizona. Bird Committee, Tucson, AZ.
- Thayer Birding Software: <http://www.thayerbirding.com/>.
- Tomoff, C.S. 2003 (3rd Edition). Birds of Prescott, AZ: Annotated checklist of the relative abundance and seasonal status of Prescott-area birds. Carl Tomoff Publications, Prescott, Arizona.
- U. S. Geological Survey, Northern Prairie Wildlife Research Center: <http://www.npwrc.usgs.gov/resource/birds/chekbird/r2/4.htm>
- WildBirds: www.WildBirds.com.
- Wingert, K. 1996. Birds in and around Prescott and the Verde Valley. The Left Hand Press, Prescott, AZ. vii + 63 p.
- Witzeman, J., S. Demaree and E Radke. 1997. Birds of Phoenix and Maricopa County. Maricopa Audubon Society, Phoenix, AZ.

Arizona Bird Checklist

See page 10 for conservation status symbol definitions.

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Abert's Towhee	<i>Melospiza aberti</i>	S3	
Acadian Flycatcher	<i>Empidonax virescens</i>	SNA	
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	S5	
Allen's Hummingbird	<i>Selasphorus sasin</i>	S2S3M	
American Avocet	<i>Recurvirostra americana</i>	S2	
American Bittern	<i>Botaurus lentiginosus</i>	S1S2	
American Coot	<i>Fulica americana</i>	S5	
American Crow	<i>Corvus brachyrhynchos</i>	S5	
American Dipper	<i>Cinclus mexicanus</i>	S3	
American Golden-plover	<i>Pluvialis dominica</i>	S1M	
American Goldfinch	<i>Spinus tristis</i>	S1B,S5N	
American Kestrel	<i>Falco sparverius</i>	S5	
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	S4	SC
American Pipit	<i>Anthus rubescens</i>	S2B,S5N	
American Redstart	<i>Setophaga ruticilla</i>	S1	
American Robin	<i>Turdus migratorius</i>	S5	
American Scoter	<i>Melanitta americana</i>	SNA	
Am. Three-toed Woodpecker	<i>Picoides dorsalis</i>	S3	
American Tree Sparrow	<i>Spizella arborea</i>	S1N	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
American White Pelican	<i>Pelecanus erythrorhynchos</i>	S3N	
American Wigeon	<i>Anas americana</i>	S1B,S5N	
Anhinga	<i>Anhinga anhinga</i>	SNA	
Anna's Hummingbird	<i>Calypte anna</i>	S5	
Apache Northern Goshawk	<i>Accipiter gentilis apache</i>	S1S2	SC
Aplomado Falcon	<i>Falco femoralis</i>	SH	No
Arctic Tern	<i>Sterna paradisaea</i>	SNA	
Arizona Bell's Vireo	<i>Vireo bellii arizonae</i>	S4	
Arizona Botteri's Sparrow	<i>Peucaea botterii arizonae</i>	S3?B	
Arizona Grasshopper Sparrow	<i>Ammodramus savannarum ammoregus</i>	S1S2	
Arizona Woodpecker	<i>Picoides arizonae</i>	S3	
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	S5	
Aztec Thrush	<i>Ridgwayia pinicola</i>	S1S2N	
Azure Bluebird	<i>Sialia sialis fulva</i>	S3	
Baird's Sandpiper	<i>Calidris bairdii</i>	S4M	
Baird's Sparrow	<i>Ammodramus bairdii</i>	S2N	SC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	S2S3B	SC
Sonoran Desert Bald Eagle	<i>Haliaeetus leucocephalus pop 3</i>	S2S3	SC
Winter Population Bald Eagle	<i>Haliaeetus leucocephalus (winter)</i>	S4N	SC
Baltimore Oriole	<i>Icterus galbula</i>	SNA	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Band-tailed Pigeon	<i>Patagioenas fasciata</i>	S5	
Bank Swallow	<i>Riparia riparia</i>	S4M	
Barn Owl	<i>Tyto alba</i>	S5	
Barn Swallow	<i>Hirundo rustica</i>	S5	
Barrow's Goldeneye	<i>Bucephala islandica</i>	S1N	
Bay-breasted Warbler	<i>Setophaga castanea</i>	SNA	
Bell's Sparrow	<i>Artemisiospiza belli</i>	S4	No
Bell's Vireo	<i>Vireo bellii</i>	S4	No
Belted Kingfisher	<i>Megaceryle alcyon</i>	S2B,S5N	
Bendire's Thrasher	<i>Toxostoma bendirei</i>	S4	
Berylline Hummingbird	<i>Amazilia beryllina</i>	S1	
Bewick's Wren	<i>Thryomanes bewickii</i>	S5	
Black Phoebe	<i>Sayornis nigricans</i>	S5	
Black Rail	<i>Laterallus jamaicensis</i>	S1	SC
Black Rosy-Finch	<i>Leucosticte atrata</i>	SA	
Black Skimmer	<i>Rynchops niger</i>	SNA	
Black Storm-Petrel	<i>Oceanodroma melania</i>	SA	
Black Swift	<i>Cypseloides niger</i>	SNA	
Black Tern	<i>Chlidonias niger</i>	S3S4M	
Black Vulture	<i>Coragyps atratus</i>	S1S2	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Black-and-white Warbler	<i>Mniotilta varia</i>	S1B	
Black-bellied Plover	<i>Pluvialis squatarola</i>	S2M	
Black-bellied Whistling-Duck	<i>Dendrocygna autumnalis</i>	S3	
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	SNA	
Black-billed Magpie	<i>Pica hudsonia</i>	S3	
Blackburnian Warbler	<i>Setophaga fusca</i>	SNA	
Black-capped Chickadee	<i>Poecile atricapillus</i>	S1N	
Black-capped Gnatcatcher	<i>Polioptila nigriceps</i>	S1	
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	S5	
Black-chinned Sparrow	<i>Spizella atrogularis</i>	S5	
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	S3	
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	S5	
Black-legged Kittiwake	<i>Rissa tridactyla</i>	SNA	
Black-necked Stilt	<i>Himantopus mexicanus</i>	S2	
Blackpoll Warbler	<i>Setophaga striata</i>	SNA	
Black-tailed Gnatcatcher	<i>Polioptila melanura</i>	S5	
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>	S1M	
Black-throated Gray Warbler	<i>Setophaga nigrescens</i>	S5	
Black-throated Green Warbler	<i>Setophaga virens</i>	SNA	
Black-throated Sparrow	<i>Amphispiza bilineata</i>	S5	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Black-vented Oriole	<i>Icterus wagleri</i>	SNA	
Blue Grosbeak	<i>Passerina caerulea</i>	S5	
Blue Jay	<i>Cyanocitta cristata</i>	SNA	
Blue Mockingbird	<i>Melanotis caerulescens</i>	SNA	
Blue-footed Booby	<i>Sula nebouxii</i>	SNA	
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	S5	
Blue-throated Hummingbird	<i>Lampornis clemenciae</i>	S4	
Blue-winged Teal	<i>Anas discors</i>	S2B,S5N	
Blue-winged Warbler	<i>Vermivora cyanoptera</i>	SNA	
Bobolink	<i>Dolichonyx oryzivorus</i>	S1	
Bohemian Waxwing	<i>Bombycilla garrulus</i>	SNA	
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>	S3S4M	
Botteri's Sparrow	<i>Peucaea botterii</i>	S4	
Brant	<i>Branta bernicla</i>	SNA	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	S5	
Brewer's Sparrow	<i>Spizella breweri</i>	S5	
Bridled Titmouse	<i>Baeolophus wollweberi</i>	S4	
Broad-billed Hummingbird	<i>Cynanthus latirostris</i>	S3	
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>	S5	
Broad-winged Hawk	<i>Buteo platypterus</i>	S2M	No

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Bronzed Cowbird	<i>Molothrus aeneus</i>	S5	
Brown Booby	<i>Sula leucogaster</i>	SNA	
Brown Creeper	<i>Certhia americana</i>	S5	
Brown Pelican	<i>Pelecanus occidentalis</i>	S1N	SC
Brown Thrasher	<i>Toxostoma rufum</i>	S1N	
Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>	S4	
Brown-headed Cowbird	<i>Molothrus ater</i>	S5	
Buff-breasted Flycatcher	<i>Empidonax fulvifrons</i>	S1	
Buff-collared Nightjar	<i>Antrostomus ridgwayi</i>	S2S3	
Bufflehead	<i>Bucephala albeola</i>	S5N	
Bullock's Oriole	<i>Icterus bullockii</i>	S4BS1N	
Bumblebee Hummingbird	<i>Atthis heloisa</i>	SA	
Burrowing Owl	<i>Athene cunicularia</i>	S3	
Bushtit	<i>Psaltirparus minimus</i>	S5	
Cackling Goose	<i>Branta hutchinsii</i>	S1N	
Cactus Ferruginous Pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	S1	SC
Cactus Wren	<i>Campylorhynchus brunneicapillus</i>	S5	
California Black Rail	<i>Laterallus jamaicensis coturniculus</i>	S1	SC
California Condor	<i>Gymnogyps californianus</i>	SX,S1	LE,XN
California Gull	<i>Larus californicus</i>	S3N	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Calliope Hummingbird	<i>Selasphorus calliope</i>	S4M	
Canada Warbler	<i>Cardellina canadensis</i>	SNA	
Canvasback	<i>Aythya valisineria</i>	S1B,S4N	
Canyon Towhee	<i>Melospiza fusca</i>	S5	
Canyon Wren	<i>Catherpes mexicanus</i>	S5	
Cape May Warbler	<i>Setophaga tigrina</i>	SNA	
Caspian Tern	<i>Hydroprogne caspia</i>	S1N	
Cassin's Finch	<i>Haemorhous cassinii</i>	S4	
Cassin's Kingbird	<i>Tyrannus vociferans</i>	S5	
Cassin's Sparrow	<i>Peucaea cassinii</i>	S4	
Cassin's Vireo	<i>Vireo cassinii</i>	S3N	
Cattle Egret	<i>Bubulcus ibis</i>	S1B,S4N	
Cave Swallow	<i>Petrochelidon fulva</i>	SAB	
Cedar Waxwing	<i>Bombycilla cedrorum</i>	S3S4N	
Cerulean Warbler	<i>Setophaga cerulea</i>	SNA	
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	S3N	
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	S1N	
Chihuahuan Savannah Sparrow	<i>Passerculus sandwichensis rufofuscus</i>	S2S3	
Chihuahuan Raven	<i>Corvus cryptoleucus</i>	S4	
Chimney Swift	<i>Chaetura pelagica</i>	SNA	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Chipping Sparrow	<i>Spizella passerina</i>	S5	
Chukar	<i>Alectoris chukar</i>	SE1SE2	
Cinnamon Hummingbird	<i>Amazilia rutila</i>	SNA	
Cinnamon Teal	<i>Anas cyanoptera</i>	S5	
Clapper Rail	<i>Rallus longirostris</i>	S3	
Clark's Grebe	<i>Aechmophorus clarkii</i>	S3	
Clark's Nutcracker	<i>Nucifraga columbiana</i>	S5	
Clay-colored Sparrow	<i>Spizella pallida</i>	S1N	
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	S5	
Common Black-Hawk	<i>Buteogallus anthracinus</i>	S3	
Common Goldeneye	<i>Bucephala clangula</i>	S5N	
Common Grackle	<i>Quiscalus quiscula</i>	SNA	
Common Ground-Dove	<i>Columbina passerina</i>	S4	
Common Loon	<i>Gavia immer</i>	S2N	
Common Merganser	<i>Mergus merganser</i>	S3S4	
Common Nighthawk	<i>Chordeiles minor</i>	S5	
Common Poorwill	<i>Phalaenoptilus nuttallii</i>	S5	
Common Raven	<i>Corvus corax</i>	S5	
Common Tern	<i>Sterna hirundo</i>	S3M	
Common Yellowthroat	<i>Geothlypis trichas</i>	S4	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Connecticut Warbler	<i>Oporornis agilis</i>	SNA	
Cooper's Hawk	<i>Accipiter cooperii</i>	S4	
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	S2S3B	
Costa's Hummingbird	<i>Calypte costae</i>	S5	
Crescent-chested Warbler	<i>Oreothlypis superciliosa</i>	SNA	
Crested Caracara	<i>Caracara cheriway</i>	S1S2	No
Crissal Thrasher	<i>Toxostoma crissale</i>	S5	
Curve-billed Thrasher	<i>Toxostoma curvirostre</i>	S5	
Dark-eyed Junco	<i>Junco hyemalis</i>	S5	
Desert Purple Martin	<i>Progne subis hesperia</i>	S2S3B	
Dickcissel	<i>Spiza americana</i>	S2M	
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	S5	
Double-crested Cormorant	<i>Phalacrocorax auritus albociliatus</i>	S3	
Downy Woodpecker	<i>Picoides pubescens</i>	S4	
Dunlin	<i>Calidris alpina</i>	S2N	
Dusky Flycatcher	<i>Empidonax oberholseri</i>	S4	
Dusky Grouse	<i>Dendragapus obscurus</i>	S3	
Dusky-capped Flycatcher	<i>Myiarchus tuberculifer</i>	S4	
Eared Grebe	<i>Podiceps nigricollis</i>	S3B,S5N	
Eared Quetzal	<i>Euptilotis neoxenus</i>	SAB,S1N	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Eastern Bluebird	<i>Sialia sialis</i>	S4	
Eastern Bluebird	<i>Sialia sialis sialis</i>	SN	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	S1S2M	
Eastern Meadowlark	<i>Sturnella magna</i>	S5	
Eastern Phoebe	<i>Sayornis phoebe</i>	S1N	
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	SA	
Eastern Wood-Pewee	<i>Contopus virens</i>	SNA	
Elegant Tern	<i>Thalasseus elegans</i>	SNA	
Elegant Trogon	<i>Trogon elegans</i>	S3	
Elf Owl	<i>Micrathene whitneyi</i>	S5	
Eurasian Collard Dove	<i>Streptopelia decaocto</i>	SE5	
European Starling	<i>Sturnus vulgaris</i>	SE5	
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	S3	
Fan-tailed Warbler	<i>Basileuterus lachrymosus</i>	SNA	
Ferruginous Hawk	<i>Buteo regalis</i>	S2B,S4N	SC
Ferruginous Pygmy-Owl	<i>Glaucidium brasilianum</i>	S1	
Field Sparrow	<i>Spizella pusilla</i>	SNA	
Five-striped Sparrow	<i>Amphispiza quinquestriata</i>	S1S2	
Flame-colored Tanager	<i>Piranga bidentata</i>	SAB	
Flammulated Owl	<i>Psilosops flammeolus</i>	S4	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Forster's Tern	<i>Sterna forsteri</i>	S2N	
Fox Sparrow	<i>Passerella iliaca</i>	S2N	
Franklin's Gull	<i>Leucophaeus pipixcan</i>	S3S4M	
Fulvous Whistling-Duck	<i>Dendrocygna bicolor</i>	SNA	SC
Gadwall	<i>Anas strepera</i>	S5	
Gambel's Quail	<i>Callipepla gambelii</i>	S5	
Garganey	<i>Anas querquedula</i>	SNA	
Gila Woodpecker	<i>Melanerpes uropygialis</i>	S5	
Gilded Flicker	<i>Colaptes chrysoides</i>	S5	
Glaucous Gull	<i>Larus hyperboreus</i>	SNA	
Glaucous-winged Gull	<i>Larus glaucescens</i>	SNA	
Golden Eagle	<i>Aquila chrysaetos</i>	S4	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	S3	
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	S1S2N	
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	SNA	
Gould's Turkey	<i>Meleagris gallopavo mexicana</i>	S1	
Grace's Warbler	<i>Setophaga graciae</i>	S5	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	S3	No
Gray Catbird	<i>Dumetella carolinensis</i>	S1	
Gray Flycatcher	<i>Empidonax wrightii</i>	S5	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Gray Hawk	<i>Buteo plagiatus</i>	S3	SC
Gray Jay	<i>Perisoreus canadensis</i>	S2	
Gray Vireo	<i>Vireo vicinior</i>	S4	
Gray-cheeked Thrush	<i>Catharus minimus</i>	SNA	
Gray-crowned Rosy-Finch	<i>Leucosticte tephrocotis</i>	SA	
Great Blue Heron	<i>Ardea herodias</i>	S5	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	SNA	
Great Egret	<i>Ardea alba</i>	S1B,S4N	
Great Horned Owl	<i>Bubo virginianus</i>	S5	
Great Kiskadee	<i>Pitangus sulphuratus</i>	SNA	
Greater Pewee	<i>Contopus pertinax</i>	S4	
Greater Roadrunner	<i>Geococcyx californianus</i>	S5	
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	SR	C*
Greater Scaup	<i>Aythya marila</i>	S1N	
Greater White-fronted Goose	<i>Anser albifrons</i>	S2N	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	S3N	
Great-tailed Grackle	<i>Quiscalus mexicanus</i>	S5	
Green Heron	<i>Butorides virescens</i>	S4	
Green Kingfisher	<i>Chloroceryle americana</i>	S2	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	S3B,S4N	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Green-winged Teal	<i>Anas crecca</i>	S3B,S5N	
Groove-billed Ani	<i>Crotophaga sulcirostris</i>	S1N	
Gull-billed Tern	<i>Gelochelidon nilotica</i>	SNA	
Gunnison Sage-grouse	<i>Centrocercus minimus</i>	SH	PE
Hairy Woodpecker	<i>Picoides villosus</i>	S5	
Hammond's Flycatcher	<i>Empidonax hammondii</i>	S1B	
Harlequin Duck	<i>Histrionicus histrionicus</i>	SNA	SC
Harris's Hawk	<i>Parabuteo unicinctus</i>	S5	
Harris's Sparrow	<i>Zonotrichia querula</i>	S1N	
Heermann's Gull	<i>Larus heermanni</i>	S1M	
Hepatic Tanager	<i>Piranga flava</i>	S4	
Hermit Thrush	<i>Catharus guttatus</i>	S5	
Hermit Warbler	<i>Setophaga occidentalis</i>	S4M	
Herring Gull	<i>Larus argentatus</i>	S2N	
Hooded Merganser	<i>Lophodytes cucullatus</i>	S2N	
Hooded Oriole	<i>Icterus cucullatus</i>	S5	
Hooded Warbler	<i>Setophaga citrina</i>	S2M	
Horned Grebe	<i>Podiceps auritus</i>	S2N	
Horned Lark	<i>Eremophila alpestris</i>	S5	No
House Finch	<i>Haemorhous mexicanus</i>	S5	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
House Sparrow	<i>Passer domesticus</i>	SE5	
House Wren	<i>Troglodytes aedon</i>	S5	
Hudsonian Godwit	<i>Limosa haemastica</i>	SNA	
Hutton's Vireo	<i>Vireo huttoni</i>	S5	
Inca Dove	<i>Columbina inca</i>	S5	
Indigo Bunting	<i>Passerina cyanea</i>	S3	
Juniper Titmouse	<i>Baeolophus ridgwayi</i>	S5	
Kentucky Warbler	<i>Geothlypis formosa</i>	S1M	
Killdeer	<i>Charadrius vociferus</i>	S5	
Ladder-backed Woodpecker	<i>Picoides scalaris</i>	S5	
Lapland Longspur	<i>Calcarius lapponicus</i>	S1N	
Large-billed Savannah Sparrow	<i>Passerculus sandwichensis rostratus</i>	SA	SC
Lark Bunting	<i>Calamospiza melanocorys</i>	S1B,S5N	
Lark Sparrow	<i>Chondestes grammacus</i>	S5	
Laughing Gull	<i>Leucophaeus atricilla</i>	SNA	
Lawrence's Goldfinch	<i>Spinus lawrencei</i>	SAB	
Laysan Albatross	<i>Phoebastria immutabilis</i>	SNA	
Lazuli Bunting	<i>Passerina amoena</i>	S4	
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	SNA	
Le Conte's Thrasher	<i>Toxostoma lecontei</i>	S3	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Least Bittern	<i>Ixobrychus exilis</i>	S3	
Least Bittern	<i>Ixobrychus exilis hesperis</i>	S3	SC
Least Flycatcher	<i>Empidonax minimus</i>	SNA	
Least Grebe	<i>Tachybaptus dominicus</i>	SAB	
Least Sandpiper	<i>Calidris minutilla</i>	S5N	
Least Storm-Petrel	<i>Oceanodroma microsoma</i>	SA	
Least Tern	<i>Sternula antillarum</i>	S2M	LE
Lesser Goldfinch	<i>Spinus psaltria</i>	S5	
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	S5	
Lesser Scaup	<i>Aythya affinis</i>	S5N	
Lesser Yellowlegs	<i>Tringa flavipes</i>	S4M	
Lewis's Woodpecker	<i>Melanerpes lewis</i>	S4	
Lincoln's Sparrow	<i>Melospiza lincolni</i>	S3B	
Little Blue Heron	<i>Egretta caerulea</i>	S1S2N	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	S4	SC
Long-billed Curlew	<i>Numenius americanus</i>	S1B	
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	S3S4N	
Long-eared Owl	<i>Asio otus</i>	S2B,S4N	
Long-tailed Duck	<i>Clangula hyemalis</i>	S1N	
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	SNA	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Louisiana Waterthrush	<i>Parkesia motacilla</i>	S1N	
Lucifer Hummingbird	<i>Calothorax lucifer</i>	S2	
Lucy's Warbler	<i>Oreothlypis luciae</i>	S5	
MacGillivray's Warbler	<i>Geothlypis tolmiei</i>	S4	
Magnificent Frigatebird	<i>Fregata magnificens</i>	SNA	
Magnificent Hummingbird	<i>Eugenes fulgens</i>	S4	
Magnolia Warbler	<i>Setophaga magnolia</i>	SNA	
Mallard	<i>Anas platyrhynchos</i>	S5	
Marbled Godwit	<i>Limosa fedoa</i>	S3M	
Marsh Wren	<i>Cistothorus palustris</i>	S2B,S3	
Masked Bobwhite	<i>Colinus virginianus ridgwayi</i>	S1	LE
McCown's Longspur	<i>Rhynchophanes mccownii</i>	S2N	
Merlin	<i>Falco columbarius</i>	S4N	
Mew Gull	<i>Larus canus</i>	SNA	
Mexican Chickadee	<i>Poecile sclateri</i>	S3	
Mexican Duck	<i>Anas platyrhynchos diazi</i>	S4	
Mexican Jay	<i>Aphelocoma wollweberi</i>	S5	
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	S3S4	LT
Mississippi Kite	<i>Ictinia mississippiensis</i>	S3	
Montezuma Quail	<i>Cyrtonyx montezumae</i>	S4	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Mountain Bluebird	<i>Sialia currucoides</i>	S5	
Mountain Chickadee	<i>Poecile gambeli</i>	S5	
Mountain Plover	<i>Charadrius montanus</i>	S1B,S2N	SC
Mountain Pygmy-Owl	<i>Glaucidium gnoma californicum</i>	S3	
Mourning Dove	<i>Zenaida macroura</i>	S5	
Mourning Warbler	<i>Geothlypis philadelphia</i>	SNA	
Nashville Warbler	<i>Oreothlypis ruficapilla</i>	S4S5M	
Neotropic Cormorant	<i>Phalacrocorax brasilianus</i>	S1N	
North Buff-breasted Flycatcher	<i>Empidonax fulvifrons pygmaeus</i>	S1	SC
Northern Aplomado Falcon	<i>Falco femoralis septentrionalis</i>	SH	LE,XN
Northern Beardless-Tyrannulet	<i>Camptostoma imberbe</i>	S4	
Northern Bobwhite	<i>Colinus virginianus</i>	S1	PS
Northern Cardinal	<i>Cardinalis cardinalis</i>	S5	
Northern Flicker	<i>Colaptes auratus</i>	S5	
Northern Goshawk	<i>Accipiter gentilis</i>	S3B	SC
Northern Goshawk	<i>Accipiter gentilis atricapillus</i>	S3	SC
Northern Harrier	<i>Circus cyaneus</i>	S1S2B	
Northern Jacana	<i>Jacana spinosa</i>	SNA	
Northern Mockingbird	<i>Mimus polyglottos</i>	S5	
Northern Parula	<i>Setophaga americana</i>	S2N	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Northern Pintail	<i>Anas acuta</i>	S2B,S5N	
Northern Pygmy-Owl	<i>Glaucidium gnoma</i>	S4	
Northern Pygmy-Owl	<i>Glaucidium gnoma gnoma</i>	S4	
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	S5	
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	S4	
Northern Shoveler	<i>Anas clypeata</i>	S1B,S5N	
Northern Shrike	<i>Lanius excubitor</i>	S2N	
Northern Waterthrush	<i>Parkesia noveboracensis</i>	S2S3M	
Nutting's Flycatcher	<i>Myiarchus nuttingi</i>	SNA	
Olive Warbler	<i>Peucedramus taeniatus</i>	S4	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	S4	SC
Orange-crowned Warbler	<i>Oreothlypis celata</i>	S3B,S5N	
Orchard Oriole	<i>Icterus spurius</i>	SNA	
Osprey	<i>Pandion haliaetus</i>	S2B,S4N	
Ovenbird	<i>Seiurus aurocapilla</i>	S2M	
Pacific Loon	<i>Gavia pacifica</i>	S1N	
Pacific Wren	<i>Troglodytes pacificus</i>	S1B,S2N	
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	S4M	
Painted Bunting	<i>Passerina ciris</i>	S2S3M	
Painted Redstart	<i>Myioborus pictus</i>	S4	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Palm Warbler	<i>Setophaga palmarum</i>	S1M	
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	SNA	
Pectoral Sandpiper	<i>Calidris melanotos</i>	S3M	
Peregrine Falcon	<i>Falco peregrinus</i>	S4	SC
Phainopepla	<i>Phainopepla nitens</i>	S5	
Philadelphia Vireo	<i>Vireo philadelphicus</i>	SNA	
Pied-billed Grebe	<i>Podilymbus podiceps</i>	S5	
Pine Grosbeak	<i>Pinicola enucleator</i>	S1	
Pine Siskin	<i>Spinus pinus</i>	S5	
Pine Warbler	<i>Setophaga pinus</i>	SNA	
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	S5	
Plain-capped Starthroat	<i>Heliomaster constantii</i>	SN	
Plumbeus Vireo	<i>Vireo plumbeus</i>	S5	
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	SNA	
Prairie Falcon	<i>Falco mexicanus</i>	S4	
Prairie Warbler	<i>Setophaga discolor</i>	SNA	
Prothonotary Warbler	<i>Protonotaria citrea</i>	S1M	
Purple Finch	<i>Haemorhous purpureus</i>	S1S2N	
Purple Gallinule	<i>Porphyrio martinicus</i>	SNA	
Purple Martin	<i>Progne subis</i>	S2S3B	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Pygmy Nuthatch	<i>Sitta pygmaea</i>	S5	
Pyrrhuloxia	<i>Cardinalis sinuatus</i>	S5	
Red Crossbill	<i>Loxia curvirostra</i>	S4	
Red Knot	<i>Calidris canutus</i>	SNA	
Red Phalarope	<i>Phalaropus fulicarius</i>	S1S2M	
Red-billed Tropicbird	<i>Phaethon aethereus</i>	SNA	
Red-breasted Merganser	<i>Mergus serrator</i>	S3N	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S4	
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>	S1N	
Reddish Egret	<i>Egretta rufescens</i>	S1N	SC
Red-eyed Vireo	<i>Vireo olivaceus</i>	S1M	
Red-faced Warbler	<i>Cardellina rubrifrons</i>	S4	
Redhead	<i>Aythya americana</i>	S4	
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	SNA	
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	S4	
Red-necked Grebe	<i>Podiceps grisegena</i>	SNA	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	S4S5M	
Red-shouldered Hawk	<i>Buteo lineatus</i>	SA	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	S5	
Red-throated Loon	<i>Gavia stellata</i>	SNA	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Red-throated Pipit	<i>Anthus cervinus</i>	SNA	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S5	
Ring-billed Gull	<i>Larus delawarensis</i>	S5N	
Ring-necked Duck	<i>Aythya collaris</i>	S5	
Ring-necked Pheasant	<i>Phasianus colchicus</i>	SE3	
Rock Pigeon	<i>Columba livia</i>	SE5	
Rock Wren	<i>Salpinctes obsoletus</i>	S5	
Roseate Spoonbill	<i>Platalea ajaja</i>	SNA	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	S3N	
Rose-throated Becard	<i>Pachyramphus aglaiae</i>	S1	
Ross's Goose	<i>Chen rossii</i>	S2N	
Rough-legged Hawk	<i>Buteo lagopus</i>	SN	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	S5	
Ruddy Duck	<i>Oxyura jamaicensis</i>	S5	
Ruddy Ground-Dove	<i>Columbina talpacoti</i>	S1B,S2N	
Ruddy Turnstone	<i>Arenaria interpres</i>	SNA	
Ruff	<i>Calidris pugnax</i>	SNA	
Rufous Hummingbird	<i>Selasphorus rufus</i>	S5M	
Rufous-backed Robin	<i>Turdus rufopalliatus</i>	S1S2N	
Rufous-capped Warbler	<i>Basileuterus rufifrons</i>	SAB	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>	S4	
Rufous-winged Sparrow	<i>Peucaea carpalis</i>	S3	
Rusty Blackbird	<i>Euphagus carolinus</i>	SNA	
Sabine's Gull	<i>Xema sabini</i>	S2M	
Sage Thrasher	<i>Oreoscoptes montanus</i>	S5	
Sanderling	<i>Calidris alba</i>	S2M	
Sandhill Crane	<i>Grus canadensis</i>	S3N	No
Savannah Sparrow	<i>Passerculus sandwichensis</i>	S5	
Say's Phoebe	<i>Sayornis saya</i>	S5	
Scaled Quail	<i>Callipepla squamata</i>	S5	
Scarlet Tanager	<i>Piranga olivacea</i>	SNA	
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	SAB	
Scott's Oriole	<i>Icterus parisorum</i>	S5	
Semipalmated Plover	<i>Charadrius semipalmatus</i>	S4M	
Semipalmated Sandpiper	<i>Calidris pusilla</i>	S2M	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	S4	No
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	SNA	
Short-billed Dowitcher	<i>Limnodromus griseus</i>	S3M	
Short-eared Owl	<i>Asio flammeus</i>	SN	
Slate-throated Redstart	<i>Myioborus miniatus</i>	SNA	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Smith's Longspur	<i>Calcarius pictus</i>	SNA	
Snow Goose	<i>Chen caerulescens</i>	S3N	
Snowy Egret	<i>Egretta thula</i>	S1B,S4N	
Snowy Plover	<i>Charadrius nivosus</i>	S2	No
Solitary Sandpiper	<i>Tringa solitaria</i>	S3M	
Song Sparrow	<i>Melospiza melodia</i>	S5	
Sooty Shearwater	<i>Puffinus griseus</i>	SNA	
Sora	<i>Porzana carolina</i>	S4	
Southwest Willow Flycatcher	<i>Empidonax traillii extimus</i>	S1	LE
Spotted Owl	<i>Strix occidentalis</i>	S3S4	
Spotted Sandpiper	<i>Actitis macularius</i>	S3S4	
Spotted Towhee	<i>Pipilo maculatus</i>	S5	
Sprague's Pipit	<i>Anthus spragueii</i>	S2N	C*
Steller's Jay	<i>Cyanocitta stelleri</i>	S5	
Stilt Sandpiper	<i>Calidris himantopus</i>	S3M	
Streak-backed Oriole	<i>Icterus pustulatus</i>	SAB,S1N	
Sulphur-bellied Flycatcher	<i>Myiodynastes luteiventris</i>	S3	
Summer Tanager	<i>Piranga rubra</i>	S4	
Surf Scoter	<i>Melanitta perspicillata</i>	S1N	
Swainson's Hawk	<i>Buteo swainsoni</i>	S3	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Swainson's Thrush	<i>Catharus ustulatus</i>	S1	
Swainson's Warbler	<i>Limnothlypis swainsonii</i>	SNA	
Swallow-tailed Kite	<i>Elanoides forficatus</i>	SA	
Swamp Sparrow	<i>Melospiza georgiana</i>	S2S3N	
Tennessee Warbler	<i>Oreothlypis peregrina</i>	S1M	
Thayer's Gull	<i>Larus thayeri</i>	SNA	
Thick-billed Kingbird	<i>Tyrannus crassirostris</i>	S2	
Thick-billed Parrot	<i>Rhynchopsitta pachyrhyncha</i>	SH	
Townsend's Solitaire	<i>Myadestes townsendi</i>	S5	
Townsend's Warbler	<i>Setophaga townsendi</i>	S4M	
Tree Swallow	<i>Tachycineta bicolor</i>	S3	
Tricolored Heron	<i>Egretta tricolor</i>	S2N	
Tropical Kingbird	<i>Tyrannus melancholicus</i>	S3	
Tropical Parula	<i>Setophaga pitiayumi</i>	SNA	
Trumpeter Swan	<i>Cygnus buccinator</i>	S1N	
Tufted Duck	<i>Aythya fuligula</i>	SNA	
Tundra Swan	<i>Cygnus columbianus</i>	S1N	
Turkey Vulture	<i>Cathartes aura</i>	S5	
Upland Sandpiper	<i>Bartramia longicauda</i>	SA	
Varied Bunting	<i>Passerina versicolor</i>	S3	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Varied Thrush	<i>Ixoreus naevius</i>	S1N	
Vaux's Swift	<i>Chaetura vauxi</i>	S4M	
Veery	<i>Catharus fuscescens</i>	S1	
Verdin	<i>Auriparus flaviceps</i>	S5	
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	S5	
Vesper Sparrow	<i>Pooecetes gramineus</i>	S5	
Violet-crowned Hummingbird	<i>Amazilia violiceps</i>	S3	
Violet-green Swallow	<i>Tachycineta thalassina</i>	S5	
Virginia Rail	<i>Rallus limicola</i>	S4	
Virginia's Warbler	<i>Oreothlypis virginiae</i>	S5	
Wandering Tattler	<i>Tringa incana</i>	SNA	
Warbling Vireo	<i>Vireo gilvus</i>	S5	
Western Bluebird	<i>Sialia mexicana</i>	S5	
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>	S3	SC
Western Grasshopper Sparrow	<i>Ammodramus savannarum perpallidus</i>	S1	
Western Grebe	<i>Aechmophorus occidentalis</i>	S3	
Western Gull	<i>Larus occidentalis</i>	SNA	
Western Kingbird	<i>Tyrannus verticalis</i>	S5	
Western Meadowlark	<i>Sturnella neglecta</i>	S5	
Western Sandpiper	<i>Calidris mauri</i>	S1N	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Western Screech-Owl	<i>Megascops kennicottii</i>	S5	
Western Scrub-Jay	<i>Aphelocoma californica</i>	S5	
Western Snowy Plover	<i>Charadrius nivosus nivosus</i>	S1	No
Western Tanager	<i>Piranga ludoviciana</i>	S5	
Western Wood-Pewee	<i>Contopus sordidulus</i>	S5	
Whimbrel	<i>Numenius phaeopus</i>	S2M	
Whiskered Screech-Owl	<i>Megascops trichopsis</i>	S3	
White Ibis	<i>Eudocimus albus</i>	SNA	
White Wagtail	<i>Motacilla alba</i>	SA	
White-breasted Nuthatch	<i>Sitta carolinensis</i>	S5	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	S1B,S5N	
White-eared Hummingbird	<i>Hylocharis leucotis</i>	S1S2	
White-eyed Vireo	<i>Vireo griseus</i>	SNA	
White-faced Ibis	<i>Plegadis chihi</i>	S2-S3N	SC
White-rumped Sandpiper	<i>Calidris fuscicollis</i>	SNA	
White-tailed Hawk	<i>Buteo albicaudatus</i>	SA	
White-tailed Kite	<i>Elanus leucurus</i>	S2B	
White-tailed Tropicbird	<i>Phaethon lepturus</i>	SNA	
White-throated Sparrow	<i>Zonotrichia albicollis</i>	S2S3N	
White-throated Swift	<i>Aeronautes saxatalis</i>	S5	

ARIZONA BIRDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
White-winged Dove	<i>Zenaida asiatica</i>	S5	
White-winged Scoter	<i>Melanitta fusca</i>	S1N	
Wild Turkey	<i>Meleagris gallopavo</i>	S5	
Willet	<i>Tringa semipalmata</i>	S4M	
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	S4	
Willow Flycatcher	<i>Empidonax traillii</i>	S1	PS
Wilson's Phalarope	<i>Phalaropus tricolor</i>	S1B,S5N	
Wilson's Snipe	<i>Gallinago delicata</i>	S1B,S4N	
Wilson's Warbler	<i>Cardellina pusilla</i>	S5M	
Winter Wren	<i>Troglodytes hiemalis</i>	S1B,S2N	
Wood Duck	<i>Aix sponsa</i>	S2B,S3N	
Wood Stork	<i>Mycteria americana</i>	S1N	No
Wood Thrush	<i>Hylocichla mustelina</i>	SNA	
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	SNA	
Yellow Grosbeak	<i>Pheucticus chrysopheplus</i>	SN	
Yellow Warbler	<i>Setophaga petechia</i>	S4	
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	SNA	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	S1N	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	S3	PS:PT
Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	S3	C

Butterflies and Moths



Butterflies and moths are important as pollinators and as food for other species. I know of no harm they cause to humans.

Mourning Cloak Butterflies (*Nymphalis antiopa*) such as the one in the photograph were common around my home beside the Agua Fria River in central Arizona. I saw them in every month of the year, and often saw dozens on the fruit trees in spring. The numbers have been falling, and I saw only a handful this year. Perhaps they will fill the air

next year.

Butterflies and moths are more socially independent than ants, but they do interact beyond their feeding and mating behavior. I've watched two Monarchs perched side-by-side patiently taking turns at a tiny nectar source, and we've all seen butterflies swirling around in aerial dances with members of their own and other species.

Though beautiful and familiar, the health and conservation status of butterflies and moths are not well known. There is nothing like the Audubon Christmas Bird Count that would let us see the trends in butterfly and moth numbers. We humans are capable of watching, counting, and investigating these beautiful creatures, but most people can name more kinds of automobiles than butterflies.

It is reasonable to assume that the same habitat losses that affect birds are affecting butterflies and moths. In recent years, researchers have determined that the decline of Monarch butterflies is a result of habitat loss and increased pesticide use on farms, roadsides, and yards. Pesticide use is exploding as more crop plants are genetically modified to resist herbicides. The big difference between birds and these aerial insects is that many species of these innocent creatures may utterly disappear before we even learn to recognize them.

Butterfly and Moth Species Numbers

- Butterfly Species Worldwide: 20,000
- Butterfly Species in the U.S.: 750
- Arizona Butterflies: 399 (2 exotics)
- Arizona Butterflies with Uncertain Status: 345 (87%)
- Arizona Butterflies at Risk (S1 to S4): 41 (79% of those classified)

- Arizona Butterflies Presumed Extinct: 2
- ESA Arizona Butterflies of Concern: 5
- Moth Species Worldwide: 160,000
- Moth Species in the U.S.: 11,000
- Arizona Moths: 4,000 (rough estimate)
- Arizona Moths Recorded by AZGFD: 59 (<2% of estimated total)
- Arizona Moths with Uncertain Status: 51 (86% of recorded)
- Arizona Moths Presumed Extinct: 3 (5% of recorded)

Butterfly and Moth References

The Butterflies and Moths of North America (BAMONA) website (<http://www.butterfliesandmoths.org/>) includes photos and detailed information. It does not include subspecies information or Arizona status. It is odd that pesticide companies advertise on the BAMONA site.

The Naturalist's Bookstore has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.

BAMONA. 2013. (Butterflies and moths of North America): <http://www.butterfliesandmoths.org/>.

Beyond Pesticides: <http://beyondpesticides.org/>.

Gardensth Wings: <http://www.gardenswithwings.com/index.html>.

Glassberg, J. 2001. Butterflies through binoculars: The West. Oxford University Press, New York, NY. 374 p.

International Lepidoptera Society: <http://tils-ttr.org>.

NABA (N. Am. Butterfly Association): <http://www.naba.org/>.

Pesticide Action Network: <http://panna.org>.

Scoble, M.J. 1995. The Lepidoptera: Form, function, and diversity. Oxford University Press, Oxford. 416 p.

Arizona Butterflies Checklist

Moths are in a separate table following the butterflies. See page 10 for conservation status symbol definitions.

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Acacia Skipper	<i>Cogia hippalus</i>	S?	
Acastus Checkerspot	<i>Chlosyne acastus</i>	S5	SC
Acmon Blue	<i>Plebejus acmon</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Afranius Dusky Wing	<i>Erynnis afranius</i>	S?	
Alamosa Satyr	<i>Cercyonis meadii alamosa</i>	S?	
Alberta Arctic	<i>Oeneis alberta</i>	S?	
Alberta Arctic	<i>Oeneis alberta daura</i>	S?	
Alexandra's Sulphur	<i>Colias alexandra</i>	S?	
Alfalfa Sulphur	<i>Colias eurytheme</i>	S?	
Alkali Skipper	<i>Pseudocopaeodes eunus eunus</i>	SRF	SC
American Painted Lady	<i>Vanessa virginiensis</i>	S?	
Anachisiades Swallowtail	<i>Papilio anchisiades</i>	S?	
Angled Leafwing	<i>Memphis glycerium</i>	S?	
Anicia Checkerspot	<i>Euphydryas anicia</i>	S4	
Anise Swallowtail	<i>Papilio zelicaon</i>	S?	
Apache Skipper	<i>Hesperia woodgatei</i>	S?	
Aphrodite Fritillary	<i>Speyeria aphrodite</i>	S?	
Arachne Checkerspot	<i>Poladryas arachne</i>	S?	
Araxes Skipper	<i>Apyrrothrix araxes</i>	S?	
Arctic Blue	<i>Plebejus glandon</i>	S?	
Arctic Blue	<i>Plebejus glandon punctatus</i>	S?	
Ares Metalmark	<i>Emesis ares</i>	S2?	
Arizona Copper	<i>Lycaena ferrisi</i>	S3	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Arizona Giant Skipper	<i>Agathymus aryxna</i>	S5	
Arizona Hairstreak	<i>Erora quaderna</i>	S?	
Arizona Metalmark	<i>Calephelis arizonensis</i>	S2	
Arizona Powdered Skipper	<i>Systasea zampa</i>	S?	
Arizona Skipper	<i>Codatractus arizonensis</i>	S?	
Arota Copper	<i>Lycaena arota</i>	S?	
Arrowhead Blue	<i>Glaucopsyche piasus</i>	S?	
Atronis Fritillary	<i>Speyeria mormonia luskii</i>	S1	
Baird's Swallowtail	<i>Papilio machaon bairdii</i>	S?	
Barred Yellow	<i>Eurema daira</i>	S?	
Bauer's Blue	<i>Euphilotes baueri</i>	S?	
Becker's White	<i>Pontia beckerii</i>	S?	
Behr's Hairstreak	<i>Satyrrium behrii</i>	S?	
Bernadino Blue	<i>Euphilotes bernardino</i>	S?	
Biosduval's Hairstreak	<i>Habrodais grunus</i>	S?	
Black Swallowtail	<i>Papilio polyxenes</i>	S?	
Blackened Bluewing	<i>Myscelia cyananthe</i>	S?	
Blue Copper	<i>Lycaena heteronea</i>	S?	
Blue Silverspot Butterfly	<i>Speyeria nokomis coeruleascens</i>	SH	SC
Boisduval's Blue	<i>Plebejus icarioides</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Boisduval's Yellow	<i>Eurema boisduvaliana</i>	S?	
Bordered Patch	<i>Chlosyne lacinia</i>	S?	
Brazilian Skipper	<i>Calpodus ethlius</i>	S?	
Broad-banded Swallowtail	<i>Papilio astyalus</i>	S?	
Bronze Roadside Skipper	<i>Amblyscirtes aenus</i>	S?	
Brown Elfin	<i>Callophrys augustinus</i>	S?	
Brown Longtail	<i>Urbanus procne</i>	SA	
Brown-banded Skipper	<i>Timochares ruptifasciata</i>	S?	
Buckeye	<i>Junonia coenia</i>	S?	
Cabbage Butterfly	<i>Pieris rapae</i>	SE	
Caicus Skipper	<i>Cogia caicus</i>	S?	
California Patch	<i>Chlosyne californica</i>	S?	
California Tortoise Shell	<i>Nymphalis californica</i>	S?	
California White	<i>Pontia sisymbrii</i>	S?	
Canyon Crescent	<i>Phyciodes batesii anasazi</i>	SH	
Carus Skipper	<i>Polites carus</i>	S?	
Cassus Roadside Skipper	<i>Amblyscirtes cassus</i>	S?	
Ceos Skipper	<i>Staphylus ceos</i>	S?	
Ceraunus Blue	<i>Hemiargus ceraunus</i>	S?	
Cestus Skipper	<i>Atrytonopsis cestus</i>	S2	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Checkered Skipper	<i>Pyrgus communis</i>	S?	
Checkered White	<i>Pontia protodice</i>	S?	
Chiricahua Pine White	<i>Neophasia terlooii</i>	S4	
Clouded Skipper	<i>Lerema accius</i>	S?	
Clouded Sulphur	<i>Colias philodice</i>	S?	
Cloudless Sulphur	<i>Phoebis sennae</i>	S?	
Colorado Hairstreak	<i>Hypaurotis crysalus</i>	S?	
Colorado Hairstreak	<i>Hypaurotis crysalus intermedia</i>	S?	
Common Branded Skipper	<i>Hesperia colorado</i>	S?	
Common Ringlet	<i>Coenonympha tullia</i>	S?	
Common Roadside-Skipper	<i>Amblyscirtes vialis</i>	S?	
Common Sooty Wing	<i>Pholisora catullus</i>	S?	
Common Wood Nymph	<i>Cercyonis pegala</i>	S?	
Comstock's Hairstreak	<i>Callophrys comstocki</i>	S1S2	
Coral Hairstreak	<i>Satyrium titus</i>	S?	
Coronis Fritillary	<i>Speyeria coronis</i>	S?	
Coyote Skipper	<i>Achalarus toxeus</i>	S?	
Crescent Metalmark	<i>Apodemia phycioidoides</i>	SH	
Cyna Blue	<i>Zizula cyna</i>	S1	
Cyneas Checkerspot	<i>Chlosyne cyneas</i>	S2	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Dainty Sulphur	<i>Nathalis iole</i>	S?	
Dark Peacock	<i>Junonia genoveva nigrosuffusa</i>	S?	
Dark Wood Nymph	<i>Cercyonis oetus</i>	S?	
Definite Patch	<i>Chlosyne definita</i>	S?	
Delaware Skipper	<i>Anatrytone logan</i>	SR	
Desert Hoary Edge	<i>Achalarus casica</i>	S?	
Desert Orangetip	<i>Anthocharis cethura</i>	S4	
Deva Skipper	<i>Atrytonopsis deva</i>	S3	
Dina Yellow	<i>Pyrisitia dina</i>	S?	
Dingy Purple Wing	<i>Eunica monima</i>	S?	
Dorantes Skipper	<i>Urbanus dorantes</i>	S?	
Dotted Blue	<i>Euphilotes enoptes</i>	S?	
Dotted Checkerspot	<i>Poladyras minuta</i>	S?	
Draco Skipper	<i>Polites draco</i>	S?	
Dreamy Dusky Wing	<i>Erynnis icelus</i>	S?	
Drusius Cloudywing	<i>Thorybes drusius</i>	S?	
Dun Skipper	<i>Euphyes vestris</i>	S?	
Dusky Emperor	<i>Asterocampa idyja</i>	S?	
Dymas Checkerspot	<i>Dymasia dymas</i>	S?	
Edwards' Skipperling	<i>Oarisma edwardsii</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Eight-spotted Polythrix	<i>Polythrix octomaculata</i>	SA	
Elada Checkerspot	<i>Texola elada</i>	S?	
Elf	<i>Microtia elva</i>	S?	
Elissa Roadside-Skipper	<i>Amblyscirtes elissa</i>	S?	
Ellis' Blue	<i>Euphilotes ellisi</i>	S?	
Emmel's Blue	<i>Euphilotes rita emmeli</i>	S?	
Emorsus Skipper	<i>Antigonus emorsa</i>	SA	
Empress Leilia	<i>Asterocampa leilia</i>	S?	
Eos Roadside Skipper	<i>Amblyscirtes eos</i>	S?	
Erichson's White-Skipper	<i>Heliopyrgus domicella</i>	S?	
Eufala Skipper	<i>Lerodea eufala</i>	S?	
Eunus Skipper	<i>Pseudocopaeodes eunus</i>	SRF	
Faceted Skipper	<i>Synapte syracas</i>	SA	
False Duskywing	<i>Gesta invisus</i>	S?	
Fatal Metalmark	<i>Calephelis nemesis</i>	S?	
Fawn-spotted Skipper	<i>Cymaenes trebius</i>	S?	
Field Crescent	<i>Phyciodes pulchella</i>	S?	
Fiery Skipper	<i>Hylephila phyleus</i>	S?	
Freeman's Agave Borer	<i>Agathymus baueri freemani</i>	S?	
Fritzgaertner's Flat	<i>Celaenorrhinus fritzgaertneri</i>	SA	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Fulvia Checkerspot	<i>Chlosyne fulvia</i>	S?	
Funereal Dusky Wing	<i>Erynnis funeralis</i>	S?	
Garita Skipperling	<i>Oarisma garita</i>	S?	
Genoveva	<i>Junonia genoveva</i>	S?	
Gentry's Giant-Skipper	<i>Agathymus gentryi</i>	S?	
Giant Swallowtail	<i>Papilio cresphontes</i>	S?	
Goatweed Butterfly	<i>Anaea andria</i>	S?	
Golden-banded Skipper	<i>Autochton cellus</i>	S?	
Gold-spot Aguna	<i>Aguna asander</i>	SA	
Gray Hairstreak	<i>Strymon melinus</i>	S?	
Great Basin Wood Nymph	<i>Cercyonis sthenele</i>	S?	
Great Purple Hairstreak	<i>Atlides halesus</i>	S?	
Great Southern White	<i>Ascia monuste</i>	S?	
Green Comma	<i>Polygonia faunus</i>	S?	
Green Skipper	<i>Hesperia viridis</i>	S?	
Greenish Blue	<i>Plebejus saepiolus</i>	S?	
Gulf Fritillary	<i>Agraulis vanillae</i>	S?	
Hackberry Butterfly	<i>Asterocampa celtis</i>	S?	
Hammock Skipper	<i>Polygonus leo</i>	S?	
Hedgerow Hairstreak	<i>Satyrium saepium</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Hedgerow Hairstreak	<i>Satyrium saepium latalinea</i>	S?	
Henshaw's Brown	<i>Cyllopsis pyracmon henshawi</i>	S2	
Hermit Skipper	<i>Grais stigmaticus</i>	SA	
Hesperia	<i>Hesperia colorado susanae</i>	S?	
Hoary Comma	<i>Polygonia gracilis</i>	S?	
Horace's Dusky Wing	<i>Erynnis horatius</i>	S?	
Howarth's Giant White	<i>Ganyra howarthi</i>	S1	
Huachuca Giant-Skipper	<i>Agathymus evansi</i>	S3	
Ilavia Hairstreak	<i>Satyrium ilavia</i>	S?	
Indra Swallowtail	<i>Papilio indra</i>	S2	
Isabella's Heliconian	<i>Eueides isabella</i>	S?	
Jade-blue Hairstreak	<i>Arawacus jada</i>	SA	
Jalapus Cloudywing	<i>Thessia jalapus</i>	S?	
Juba Skipper	<i>Hesperia juba</i>	S?	
Julia's Skipper	<i>Nastra julia</i>	S1	
Juniper Hairstreak	<i>Callophrys gryneus</i>	S?	
Juniper Hairstreak	<i>Callophrys gryneus siva</i>	S?	
Juvenal's Dusky Wing	<i>Erynnis juvenalis</i>	S?	
Large Marble	<i>Euchloe ausonides</i>	S?	
Large Orange Sulphur	<i>Phoebis agarithe</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Large Roadside Skipper	<i>Amblyscirtes exoteria</i>	S?	
Large White Skipper	<i>Helioptetes ericetorum</i>	S?	
Laviana Skipper	<i>Helioptetes laviana</i>	S?	
Leanira Checkerspot	<i>Chlosyne leanira</i>	S?	
Least Skipper	<i>Ancyloxypha numitor</i>	S?	
Leda Hairstreak	<i>Ministrymon leda</i>	S?	
Lindsey's Skipper	<i>Hesperia lindseyi</i>	S?	
Little Yellow	<i>Pyrisitia lisa</i>	S?	
Long Dash	<i>Polites mystic</i>	S1	
Long-tailed Skipper	<i>Urbanus proteus</i>	S?	
Lunus Skipper	<i>Atrytonopsis lunus</i>	S?	
Lupine Blue	<i>Plebejus lupini</i>	S?	
Lyside Sulphur	<i>Kricogonia lyside</i>	S?	
Maciara Skipper	<i>Helioptetes macaira</i>	S?	
Malachite	<i>Siproeta stelenes</i>	S?	
Mallow Scrub-Hairstreak	<i>Strymon istapa</i>	S?	
Many-banded Daggerwing	<i>Marpesia chiron</i>	S?	
Many-spotted Skipperling	<i>Piruna aea</i>	S?	
Margined White	<i>Pieris marginalis</i>	S?	
Maria's Metalmark	<i>Lasaia maria</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Marine Blue	<i>Leptotes marina</i>	S?	
Mazans Scallopwing	<i>Staphylus mazans</i>	S?	
Mead's Wood Nymph	<i>Cercyonis meadii</i>	S?	
Melissa Blue	<i>Plebejus melissa</i>	S?	
Meridian Dusky Wing	<i>Erynnis meridianus</i>	S?	
Mexican Cloudywing	<i>Thorybes mexicana</i>	S?	
Mexican Fritillary	<i>Euptoieta hegesia</i>	S?	
Mexican Gray Hairstreak	<i>Strymon bebrycia</i>	S?	
Mexican Polythrix	<i>Polythrix mexicana</i>	SA	
Mexican Sootywing	<i>Pholisora mejicanus</i>	S?	
Mexican Yellow	<i>Eurema mexicana</i>	S?	
Milbert's Tortoiseshell	<i>Aglais milberti</i>	S?	
Mimosa Yellow	<i>Pyrisitia nise</i>	S?	
Mohave Sootywing	<i>Hesperopsis libya</i>	S?	
Mojave Blue	<i>Euphilotes mojave</i>	S1	
Mojave Blue	<i>Euphilotes mojave virginensis</i>	S1	
Mojave Giant Skipper	<i>Agathymus alliae</i>	S4	
Monarch	<i>Danaus plexippus</i>	SN?	
Mormon Fritillary	<i>Speyeria mormonia</i>	S?	
Mormon Metalmark	<i>Apodemia mormo</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Morrison's Skipper	<i>Stinga morrisoni</i>	S?	
Mottled Bolla	<i>Bolla clytius</i>	SA	
Mountain Silverspot	<i>Speyeria nokomis nitocris</i>	S3	
Mournful Dusky Wing	<i>Erynnis tristis</i>	S?	
Mourning Cloak	<i>Nymphalis antiopa</i>	S?	
Mylitta Crescent	<i>Phyciodes mylitta</i>	S?	
Nais Metalmark	<i>Apodemia nais</i>	S?	
Neamathla Skipper	<i>Nastra neamathla</i>	S?	
Neumogen's Giant Skipper	<i>Agathymus neumoegeni</i>	S3	
Nevada Skipper	<i>Hesperia nevada</i>	S?	
Nokomis Fritillary	<i>Speyeria nokomis</i>	S3	
Northern Cloudywing	<i>Thorybes pylades</i>	S?	
Northern Crescent	<i>Phyciodes cocyta</i>	S?	
Northwestern Fritillary	<i>Speyeria hesperis</i>	S3	
Nyctelius Skipper	<i>Nyctelius nyctelius</i>	SA	
Nysa Roadside Skipper	<i>Amblyscirtes nysa</i>	S?	
Obsolete Viceroy Butterfly	<i>Limenitis archippus obsoleta</i>	S4	
Ocola Skipper	<i>Panoquina ocola</i>	S?	
Old World Swallowtail	<i>Papilio machaon</i>	S?	
Orange Skipperling	<i>Copaeodes aurantiaca</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Orange-barred Sulphur	<i>Phoebis philea</i>	S?	
Orange-edged Roadside Skipper	<i>Amblyscirtes fimbriata</i>	S?	
Ornythion Swallowtail	<i>Papilio ornythion</i>	S?	
Oslar's Roadside Skipper	<i>Amblyscirtes oslari</i>	S?	
Pacuvius Dusky Wing	<i>Erynnis pacuvius</i>	S?	
Pahaska Skipper	<i>Hesperia pahaska</i>	S?	
Painted Crescent	<i>Phyciodes picta</i>	S?	
Painted Crescent	<i>Phyciodes picta canace</i>	S?	
Painted Lady	<i>Vanessa cardui</i>	S?	
Pale Crescent	<i>Phyciodes pallida</i>	S?	
Pallid Blue	<i>Euphilotes pallescens</i>	S?	
Palmer's Metalmark	<i>Apodemia palmerii</i>	S?	
Pearl Crescent	<i>Phyciodes tharos</i>	S?	
Pearly Marble	<i>Euchloe lotta</i>	S?	
Peck's Skipper	<i>Polites peckius</i>	S?	
Persius Dusky Wing	<i>Erynnis persius</i>	S?	
Phaon Crescent	<i>Phyciodes phaon</i>	S?	
Philetas Checkered Skipper	<i>Pyrgus philetas</i>	S?	
Phylace Roadside Skipper	<i>Amblyscirtes phylace</i>	S?	
Pine Satyr	<i>Paramacera allyni</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Pine White	<i>Neophasia menapia</i>	S5	
Pipeline Swallowtail	<i>Battus philenor</i>	S?	
Pirus Skipperling	<i>Piruna pirus</i>	S?	
Pittacus Skipper	<i>Atrytonopsis pittacus</i>	S?	
Poling's Giant Skipper	<i>Agathymus polingi</i>	S2	
Polydamus Swallowtail	<i>Battus polydamas</i>	S?	
Potrillo Skipper	<i>Cabares potrillo</i>	SA	
Purple-washed Skipper	<i>Panoquina lucas</i>	SA	
Purplish Copper	<i>Lycaena helloides</i>	S?	
Pyracmon Brown	<i>Cylopsis pyracmon</i>	S?	
Python Skipper	<i>Atrytonopsis python</i>	S?	
Queen	<i>Danaus gilippus</i>	S?	
Question Mark	<i>Polygonia interrogationis</i>	S?	
Rawson's Metalwork	<i>Calephelis rawsoni</i>	S?	
Reakirt's Blue	<i>Echinargus isola</i>	S?	
Red Admiral	<i>Vanessa atalanta</i>	S?	
Red Satyr	<i>Megisto rubricata</i>	S?	
Red-bordered Brown	<i>Gyrocheilus patrobas</i>	S?	
Rhesus Skipper	<i>Polites rhesus</i>	S?	
Riding's Satyr	<i>Neominois ridingsii</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Rita Blue	<i>Euphilotes rita</i>	S?	
Rocky Mountain Dusky Wing	<i>Erynnis telemachus</i>	S?	
Rosita Patch	<i>Chlosyne rosita</i>	S?	
Ruddy Dagger Wing	<i>Marpesia petreus</i>	S?	
Rustic Blue	<i>Plebejus glandon rusticus</i>	S?	
Sachem	<i>Atalopedes campestris</i>	S?	
Saltbush Sootywing	<i>Hesperopsis alpheus</i>	S?	
Sandhill Skipper	<i>Polites sabuleti</i>	S?	
Satyr Anglewing	<i>Polygonia satyrus</i>	S?	
Scudder's Dusky Wing	<i>Erynnis scudderi</i>	S1S2	
Shasta Blue	<i>Plebejus shasta</i>	S?	
Sheep Skipper	<i>Atrytonopsis edwardsi</i>	S?	
Sheridan's Green Hairstreak	<i>Callophrys sheridanii</i>	S?	
Short-tailed Arizona Skipper	<i>Zestusa dorus</i>	S?	
Short-tailed Black Swallowtail	<i>Papilio indra kaibabensis</i>	S2	
Silver Emperor	<i>Doxocopa laure</i>	S?	
Silver-spotted Skipper	<i>Epargyreus clarus</i>	S?	
Silvery Blue	<i>Glaucopsyche lygdamus</i>	S?	
Silvery Blue	<i>Glaucopsyche lygdamus minipunctum</i>	S?	
Silvery Checkerspot	<i>Chlosyne nycteis</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Simaethis Hairstreak	<i>Chlorostymon simaethis</i>	S?	
Simius Roadside Skipper	<i>Amblyscirtes simius</i>	S?	
Skinner's Dusky Wing	<i>Achalarus albociliatus</i>	SA	
Slaty Roadside Skipper	<i>Amblyscirtes nereus</i>	S?	
Sleepy Dusky Wing	<i>Erynnis brizo</i>	S?	
Sleepy Orange	<i>Abaeis nicippe</i>	S?	
Small Blue	<i>Philotiella speciosa</i>	S?	
Small Checkered Skipper	<i>Pyrgus scriptura</i>	S?	
Snow's Skipper	<i>Paratrytone snowi</i>	S?	
Soapberry Hairstreak	<i>Phaeostymon alcestis</i>	S?	
Soldier	<i>Danaus eresimus</i>	S?	
Sonora Skipper	<i>Polites sonora</i>	S?	
Sonoran Banded-Skipper	<i>Autochton pseudocellus</i>	SX	
Sonoran Hairstreak	<i>Hypostrymon critola</i>	S2	
Sonoran Marble	<i>Euchloe guaymasensis</i>	S?	
Sonoran Metalmark	<i>Apodemia mejicanus</i>	S?	
Sonoran Orangetip	<i>Anthocharis thoosa</i>	S5	
Southern Checkered Skipper	<i>Pyrgus xanthus</i>	S?	
Southern Dogface	<i>Zerene cesonia</i>	S?	
Southern Skipperling	<i>Copaeodes minima</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Spalding's Blue	<i>Euphilotes spaldingi</i>	S?	
Square-spotted Blue	<i>Euphilotes battoides</i>	S?	
Streaky Skipper	<i>Celotes nesus</i>	S?	
Strecker's Giant Skipper	<i>Megathymus streckeri</i>	S?	
Sunrise Skipper	<i>Adopaeoides prittwitzii</i>	S2	
Sylvan Hairstreak	<i>Satyrrium sylvinus</i>	S?	
Tailed Orange	<i>Pyrisitia proterpia</i>	S1S2B	
Tailed Sulphur	<i>Phoebis neocypris</i>	S?	
Tailless Scrub-Hairstreak	<i>Strymon cestri</i>	S?	
Tawny Crescent	<i>Phyciodes batesii</i>	SH	
Tawny Emperor	<i>Asterocampa clyton</i>	S?	
Tawny-edged Skipper	<i>Polites themistocles</i>	S?	
Taxiles Skipper	<i>Poanes taxiles</i>	S?	
Texan Crescent	<i>Anthanassa texana</i>	S?	
Texas Blue	<i>Plebejus lupini texanus</i>	S?	
Texas Powdered-Skipper	<i>Systasea pulverulenta</i>	S?	
Texas Roadside Skipper	<i>Amblyscirtes texanae</i>	S?	
Theona Checkerspot	<i>Chlosyne theona</i>	S?	
Thicket Hairstreak	<i>Callophrys spinetorum</i>	S?	
Three-tailed Swallowtail	<i>Papilio pilumnus</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Toltec Roadside-Skipper	<i>Amblyscirtes tolteca</i>	S?	
Tropical Checkered Skipper	<i>Pyrgus oileus</i>	S?	
Tropical Leafwing	<i>Anaea aidea</i>	S?	
Tropical Least Skipper	<i>Ancyloxypha arene</i>	S?	
Tropical Snout	<i>Libytheana carinenta</i>	S?	
Tropical White	<i>Appias drusilla</i>	S?	
Tulcis Crescent	<i>Anthanassa tulcis</i>	S?	
Two-tailed Swallowtail	<i>Papilio multicaudata</i>	S?	
Umber Skipper	<i>Poanes melane</i>	S1S2	
Uncas Skipper	<i>Hesperia uncas</i>	S?	
Ursine Giant Skipper	<i>Megathymus ursus</i>	S3	
Ursine Giant Skipper	<i>Megathymus ursus ursus</i>	S3	
Valeriana Skipper	<i>Codatractus valeriana</i>	S2	
Variiegated Fritillary	<i>Euptoieta claudia</i>	S?	
Vesta Crescent	<i>Phyciodes graphica</i>	S?	
Viceroy	<i>Limenitis archippus</i>	S4	
Viereck's Skipper	<i>Atrytonopsis vierecki</i>	S?	
Violet-clouded Skipper	<i>Lerodea arabus</i>	S?	
Vitelline Skipper	<i>Poanes melane vitellina</i>	S1S2	
Warm Brown	<i>Cyllopsis pertepida</i>	S?	

ARIZONA BUTTERFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Weidemeyer's Admiral	<i>Limenitis weidemeyerii</i>	S?	
West Coast Lady	<i>Vanessa annabella</i>	S?	
Western Checkered Skipper	<i>Pyrgus albescens</i>	S?	
Western Green Hairstreak	<i>Callophrys affinis</i>	S?	
Western Pine Elfin	<i>Callophrys eryphon</i>	S?	
Western Pygmy-Blue	<i>Brephidium exilis</i>	S?	
Western Tiger Swallowtail	<i>Papilio rutulus</i>	S?	
Western White	<i>Pontia occidentalis</i>	S?	
White Admiral	<i>Limenitis arthemis</i>	S?	
White Angled Sulphur	<i>Anteos clorinde</i>	S?	
White Morpho	<i>Morpho polyphemus</i>	S?	
White-dotted Cattleheart	<i>Parides alopius</i>	S?	
White-patched Skipper	<i>Chiomara georgina</i>	S?	
White-striped Longtail	<i>Choiodes albofasciatus</i>	SA	
Wind's Skipper	<i>Windia windi</i>	SA	
Woodland Skipper	<i>Ochlodes sylvanoides</i>	S?	
Wright's Metalmark	<i>Calephelis wrighti</i>	S?	
Xami Hairstreak	<i>Callophrys xami</i>	S2?	
Yavapai Giant Skipper	<i>Agathymus baueri</i>	S?	
Yellow Brimstone	<i>Anteos maerula</i>	S?	

ARIZONA BUTTERFLIES

COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Yucca Giant-Skipper	<i>Megathymus yuccae</i>	S?	
Yuma Skipper	<i>Ochlodes yuma</i>	S?	
Zela Metalmark	<i>Emesis zela</i>	S1	
Zephyr	<i>Polygonia gracilis zephyrus</i>	S?	
Zilpa Longtail	<i>Chioides zilpa</i>	S?	

Moths

See page 10 for conservation status symbol definitions.

ARIZONA MOTHS

COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Asella Sphinx	<i>Sphinx asella</i>	S?	
Benjamin's Underwing	<i>Catocala benjamini</i>	S?	
Bride	<i>Catocala neogama</i>	S?	
Buckmoth	<i>Hemileuca grotei</i>	S?	
Buckmoth	<i>Hemileuca grotei diana</i>	S?	
Griffin's Sheepmoth	<i>Hemileuca griffini</i>	S2?	
Grote's Underwing	<i>Catocala grotiana</i>	S?	
Hartweg's Sphinx	<i>Dolbogene hartwegii</i>	S?	
Hera Sheepmoth	<i>Hemileuca hera</i>	S?	
Hera Sheepmoth	<i>Hemileuca hera magnifica</i>	S?	

ARIZONA MOTHS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Hualpai Buckmoth	<i>Hemileuca hualapai</i>	S?	
Ilia Underwing	<i>Catocala ilia</i>	S?	
Incense Cedar Sphinx	<i>Sphinx libocedrus</i>	S?	
Jessica Underwing	<i>Catocala jessica</i>	S?	
Joined Underwing	<i>Catocala junctura</i>	S?	
Notodontid Moth	<i>Astyliis biedermani</i>	S1	
Notodontid Moth	<i>Astyliis sp. 1</i>	S?	
Notodontid Moth	<i>Dasylophia seriata</i>	S?	
Notodontid Moth	<i>Euhyparpax rosea</i>	S?	
Notodontid Moth	<i>Heterocampa amanda</i>	S2S3	
Notodontid Moth	<i>Heterocampa averna</i>	S?	
Notodontid Moth	<i>Heterocampa ditta</i>	SH	
Notodontid Moth	<i>Heterocampa incongrua</i>	S?	
Notodontid Moth	<i>Heterocampa ruficornis</i>	S?	
Notodontid Moth	<i>Heterocampa sp.</i>	S?	
Notodontid Moth	<i>Hippia packardii</i>	S?	
Notodontid Moth	<i>Litodonta aonides</i>	S?	
Notodontid Moth	<i>Litodonta contrasta</i>	S?	

ARIZONA MOTHS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Notodontid Moth	<i>Litodonta sp. 1 nr. alpina</i>	S?	
Notodontid Moth	<i>Oligocentria alpica</i>	S?	
Notodontid Moth	<i>Oligocentria delicata</i>	S?	
Notodontid Moth	<i>Oligocentria paradisus</i>	SH	
Notodontid Moth	<i>Oligocentria pinalensis</i>	SH	
Notodontid Moth	<i>Oligocentria sp. 1</i>	S?	
Notodontid Moth	<i>Schizura biedermani</i>	S?	
Notodontid Moth	<i>Symmerista zacualpana</i>	S?	
Patagonia Eyed Silkmoth	<i>Automeris patagoniensis</i>	S?	
Penitent	<i>Catocala piatrix</i>	S?	
Royal Moth	<i>Sphingicampa raspa</i>	S1	
Semirelict Underwing	<i>Catocala semirelecta</i>	S?	
Slender Sylph	<i>Macrothemis inacuta</i>	S?	
Sphinx Moth	<i>Sphinx smithi</i>	S?	
Stone's Buckmoth	<i>Hemileuca stonei</i>	S?	
Sweetheart Underwing	<i>Catocala amatrix</i>	S?	
Terloo's Sphinx	<i>Proserpinus terlooii</i>	S1	
Tricolor Buckmoth	<i>Hemileuca tricolor</i>	S?	

Dragonflies and Damselflies



This might be a Paddle-tailed Darner (*Aeshna palmata*)

These are my favorite predators. They have been around since before the dinosaurs, much longer than any mammal predator that ever existed. They've survived for such a long time because, since evolution achieved their form and behavior, it hasn't been able to find anything better—for over 300 million years!

Damselflies and dragonflies are amazing fliers. These aerial acrobats can hover and fly straight up, straight down, and even upside down. Their vision and speed are so good that they are difficult to catch in bug nets. A hovering dragonfly can move so fast it seems to disappear.

These small predators make full use of their aerial abilities. Researchers have discovered that, just like mammal predators, Odonata capture their prey by anticipating its movements.

Both damselflies and dragonflies live near water, but damselflies more often hunt in lawns and fields. Both lay their eggs in water, and their nymphs develop there. So much of their life is spent in water that water quality influences their success. In summer, the absence of dragonflies around a spring or pond can indicate the water is poisonous.

These little creatures are familiar and common, yet the conservation status of most of them is unknown. Worldwide, specialists consider them an imperiled group. In Arizona, the quality and quantity of the moist habitats they require are declining as the human population soars. We need more information about these species. You can help by registering with Odonata Central (<http://odonatacentral.org/>) and posting your sightings. Find photographs and learn more about Arizona damselfly and dragonfly conservation at the Arizona Odonata (<http://azodes.org/>) websites.

Damselfly and Dragonfly Species Numbers*

- World: 5,500
- U.S.: 500
- Arizona: 137*
- Status Unknown: 107 (78%)
- AZGFD Imperiled (S1 to S4): 26 (87% of those of known status)
- ESA Species of Concern: 1

*I added 30 species on the Odonata Central list to the AZGFD October 2013 list. Other sources list slightly different numbers of species. The main reason for this is that some lists contain subspecies not included in others.

Arizona Damselfly and Dragonfly References

The Naturalist's Bookstore has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.

Arizona Odonata website. <http://azodes.org>.

Arizona Dragonflies (Damselflies and Dragonflies): www.azdragonfly.net.

Behrstock, R.A. 2008. Dragonflies and damselflies of the Southwest. Rio Nuevo Publishers, Tucson, AZ, 96 p.

Corbet, P, 1999. Dragonflies — Behavior and Ecology of Odonata. Comstock Pub. Assoc., New York. 829 p.

Dragonflies of the Southwest: <http://southwestdragonflies.net>.

Dunkle, S.W. 2000. Dragonflies through binoculars: A field guide to dragonflies of North America. Oxford Univ Press, NY, NY. 266 p.

Odonata Central: <http://odonatacentral.org>.

Paulson, D. 2009. Dragonflies and damselflies of the West. Princeton Press. Princeton, NJ. 536 p.

Arizona Damselfly and Dragonfly Checklist

See page 10 for conservation status symbol definitions.

ARIZONA DAMESELFIES AND DRAGONFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
--	<i>Amphiagrion intermedia</i>	*	
--	<i>Argia harknessi</i>	*	
American Rubyspot	<i>Hetaerina americana</i>	*	
Amethyst Dancer	<i>Argia pallens</i>	S?	
Apache Dancer	<i>Argia munda</i>	S?	
Apache Spiketail	<i>Cordulegaster diadema</i>	S3	
Arizona Snaketail	<i>Ophiogomphus arizonicus</i>	S3S4	
Arroyo Bluet	<i>Enallagma praevarum</i>	S?	

ARIZONA DAMESELFLIES AND DRAGONFLIES

COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Arroyo Darner	<i>Rhionaeschna dugesi</i>	S1	
Autumn Meadowhawk	<i>Sympetrum vicinum</i>	*	
Aztec Dancer	<i>Argia nahuana</i>	S?	
Baja Bluet	<i>Enallagma eiseni</i>	*	
Band-winged Meadowhawk	<i>Sympetrum semicinctum</i>	S2	
Black Meadowhawk	<i>Sympetrum danae</i>	*	
Black Saddlebags	<i>Tramea lacerata</i>	S?	
Black Setwing	<i>Dythemis nigrescens</i>	S3	
Black-and-white Damsel	<i>Apanisagrion lais</i>	S?	
Black-fronted Forktail	<i>Ischnura denticollis</i>	S?	
Black-winged Dragonlet	<i>Erythrodiplax funerea</i>	S?	
Bleached Skimmer	<i>Libellula composita</i>	S1	
Blue Dasher	<i>Pachydiplax longipennis</i>	S?	
Blue-eyed Darner	<i>Rhionaeschna multicolor</i>	S5	
Blue-faced Darner	<i>Coryphaeschna adnexa</i>	*	
Blue-fronted Dancer	<i>Argia apicalis</i>	*	
Blue-ringed Dancer	<i>Argia sedula</i>	S?	
Boreal Bluet	<i>Enallagma boreale</i>	*	
Brimstone Clubtail	<i>Stylurus intricatus</i>	S1	
California Dancer	<i>Argia agrioides</i>	S?	

ARIZONA DAMESELFLIES AND DRAGONFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
California Darner	<i>Rhionaeschna californica</i>	*	
California Spreadwing	<i>Archilestes californicus</i>	S?	
Canyon Rubyspot	<i>Hetaerina vulnerata</i>	*	
Cardinal Meadowhawk	<i>Sympetrum illotum</i>	*	
Carmine Skimmer	<i>Orthemis discolor</i>	*	
Chalky Spreadwing	<i>Lestes sigma</i>	*	
Checkered Setwing	<i>Dythemis fugax</i>	S2	
Citrine Forktail	<i>Ischnura hastata</i>	S?	
Claw-tipped Bluet	<i>Enallagma semicirculare</i>	S?	
Comanche Skimmer	<i>Libellula comanche</i>	S3S4	
Common Green Darner	<i>Anax junius</i>	S?	
Common Whitetail	<i>Plathemis lydia</i>	S?	
Desert Firetail	<i>Telebasis salva</i>	S?	
Desert Forktail	<i>Ischnura barberi</i>	S?	
Desert Shadowdamsel	<i>Palaemnema domina</i>	S1	
Desert Whitetail	<i>Plathemis subornata</i>	S?	
Double-striped Bluet	<i>Enallagma basidens</i>	S?	
Dusky Dancer	<i>Argia translata</i>	S?	
Eastern Amberwing	<i>Perithemis tenera</i>	S?	
Eastern Pondhawk	<i>Erythemis simplicicollis</i>	S?	

ARIZONA DAMESELFLIES AND DRAGONFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Eastern Ringtail	<i>Erpetogomphus designatus</i>	S?	
Eastern Tailed-Blue	<i>Cupido (Everes) comyntas</i>	S?	
Eight-spotted Skimmer	<i>Libellula forensis</i>	S3	
Emerald Spreadwing	<i>Lestes dryas</i>	S?	
Familiar Bluet	<i>Enallagma civile</i>	S?	
Fiery-eyed Dancer	<i>Argia oenea</i>	S?	
Filigree Skimmer	<i>Pseudoleon superbus</i>	S?	
Flame Skimmer	<i>Libellula saturata</i>	S5	
Four-spotted Pennant	<i>Brachymesia gravida</i>	*	
Four-spotted Skimmer	<i>Libellula quadrimaculata</i>	S4	
Giant Green Darner	<i>Anax walsinghami</i>	S?	
Gray Sanddragon	<i>Progomphus borealis</i>	S?	
Great Pondhawk	<i>Erythemis vesiculosa</i>	S?	
Great Spreadwing	<i>Archilestes grandis</i>	S?	
Halloween Pennant	<i>Celithemis eponina</i>	*	
Hoary Skimmer	<i>Libellula nodisticta</i>	S3	
Kiowa Dancer	<i>Argia immunda</i>	S?	
Lavender Dancer	<i>Argia hinei</i>	S?	
Malachite Darner	<i>Remartinia luteipennis</i>	S2	
Marl Pennant	<i>Macrodiplax balteata</i>	S?	

ARIZONA DAMESELFLIES AND DRAGONFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Masked Clubskimmer	<i>Brechmorhoga pertinax</i>	S1	
Mayan Setwing	<i>Dythemis maya</i>	*	
Mexican Amberwing	<i>Perithemis intensa</i>	S?	
Mexican Forktail	<i>Ischnura demorsa</i>	S?	
Narrow-striped Forceptail	<i>Aphylla protracta</i>	*	
Neon Skimmer	<i>Libellula croceipennis</i>	S5	
Neotropical Bluet	<i>Enallagma novaehispaniae</i>	*	
Northern Bluet	<i>Enallagma annexum</i>	S?	
Northern Spreadwing	<i>Lestes disjunctus</i>	S?	
Pacific Forktail	<i>Ischnura cervula</i>	S?	
Pacific Spiketail	<i>Cordulegaster dorsalis</i>	*	
Paddle-tailed Darner	<i>Aeshna palmata</i>	S?	
Painted Damsel	<i>Hesperagrion heterodoxum</i>	S?	
Paiute Dancer	<i>Argia alberta</i>	S?	
Pale-faced Clubskimmer	<i>Brechmorhoga mendax</i>	S4	
Persephone's Darner	<i>Aeshna persephone</i>	S?	
Pima Dancer	<i>Argia pima</i>	S1	
Plains Forktail	<i>Ischnura damula</i>	S?	
Plateau Dragonlet	<i>Erythrodiplax basifusca</i>	*	
Plateau Dragonlet	<i>Erythrodiplax connata</i>	S?	

ARIZONA DAMESELFLIES AND DRAGONFLIES

COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Plateau Spreadwing	<i>Lestes alacer</i>	S?	
Powdered Dancer	<i>Argia moesta</i>	S?	
Rambur's Forktail	<i>Ischnura ramburii</i>	S?	
Red Rock Skimmer	<i>Paltothemis lineatipes</i>	S?	
Red Saddlebags	<i>Tamea onusta</i>	S?	
Red-tailed Pennant	<i>Brachymesia furcata</i>	*	
Riffle Darner	<i>Oplonaeschna armata</i>	S?	
River Bluet	<i>Enallagma anna</i>	S?	
Roseate Skimmer	<i>Orthemis ferruginea</i>	*	
Russet-tipped Clubtail	<i>Stylurus plagiatu</i>	S3	
Sabino Canyon Dancer	<i>Argia sabino</i>	S2	SC
Serpent Ringtail	<i>Erpetogomphus lampropeltis</i>	S?	
Sierra Madre Dancer	<i>Argia lacrimans</i>	S?	
Slender Sylph	<i>Macrothemis inacuta</i>	S?	
Slough Amberwing	<i>Perithemis domitia</i>	S?	
Smoky Rubyspot	<i>Hetaerina titia</i>	*	
Sooty Dancer	<i>Argia lugens</i>	S?	
Sooty Saddlebags	<i>Tamea binotata</i>	*	
Spine-tipped Dancer	<i>Argia extranea</i>	S?	
Spotted Spreadwing	<i>Lestes congener</i>	S?	

ARIZONA DAMESELFLIES AND DRAGONFLIES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Spot-winged Glider	<i>Pantala hymenaea</i>	S?	
Spot-winged Meadowhawk	<i>Sympetrum signiferum</i>	S2	
Springwater Dancer	<i>Argia plana</i>	S?	
Straight-tipped Ringtail	<i>Erpetogomphus elaps</i>	*	
Striped Meadowhawk	<i>Sympetrum pallipes</i>	S4	
Striped Saddlebags	<i>Tramea calverti</i>	*	
Swift Setwing	<i>Dythemis velox</i>	S1	
Taiga Bluet	<i>Coenagrion resolutum</i>	S1	
Tarascan Dancer	<i>Argia tarascana</i>	S1	
Tezpi Dancer	<i>Argia tezpi</i>	S?	
Tonto Dancer	<i>Argia tonto</i>	S?	
Tule Bluet	<i>Enallagma carunculatum</i>	S?	
Turquoise-tipped Darner	<i>Rhionaeschna psilus</i>	S3	
Twelve-spotted Skimmer	<i>Libellula pulchella</i>	S5	
Variable Dancer	<i>Argia fumipennis</i>	*	
Variable Darner	<i>Aeshna interrupta</i>	S?	
Variiegated Meadowhawk	<i>Sympetrum corruptum</i>	S5	
Vivid Dancer	<i>Argia vivida</i>	S?	
Wandering Glider	<i>Pantala flavescens</i>	S?	
Western Forktail	<i>Ischnura perparva</i>	S?	

Fish



Arizona has limited precipitation, high evaporation, and not much surface water. Some of the winter rain and snow, and heavy summer rain can escape evaporation by penetrating the soil and accumulating in fractured rocks and sediments on slopes and in valley floors. The moisture soaks down slope through the sediments, and appears in springs, intermittent streams, and a few perennial streams and small lakes. Many isolated endemic and rare amphibian, fish, mollusk, and plant species are present in these small habitats across the state.

Photograph: The Agua Fria River in central Arizona is an intermittent stream with a few perennial segments that provide

homes for small fish. Urban wastes, farm fertilizer and pesticides, and mine tailings heavily pollute the river. Invasive species dominate the water and stream banks.

During the past century, the Arizona human population grew from thousands to millions. First farming and then industrial and urban users diverted the streams into reservoirs and then began withdrawing stored water in the ground. Some stream segments and many springs have been lost, and those that remain are increasingly toxic.

Continued population growth creates a hopeless future for fish. According to Stephen J. Walsh, Howard L. Jelks, and Noel M. Burkhead of the U.S. Geological Survey, almost half of North American species are imperiled and the percentage is growing (2009 article online at [Actionbioscience](#)). All of Arizona's native species are ranked vulnerable (S3) or worse (S1, S2).

Fish Species Numbers

The October 10, 2013 report by the Arizona Game and Fish Department includes 42 surviving native Arizona fish species. Two native species are extinct, and AZGFD considers all the others vulnerable. The numbers below are from the North American Native Fishes Association (NANFA), the U. S. Fish and Wildlife Service, and AZGFD. I included percentages only for Arizona's native species, but the introduced species are declining along with the natives.

- World (Saltwater, Freshwater, and Anadromous): 32,000
- U.S.: 1,154

- Arizona Native Fish Species: 42
- Arizona Native Fish Extinct: 2 (5%)
- Arizona Native Fish Vulnerable: 40 (100%)
- Arizona Introduced Exotic Fish Species: 68
- ESA Arizona Fish Listed Endangered: 6 (15%)
- ESA Arizona Fish Listed Threatened: 6 (15%)
- ESA Arizona Fish of Concern: 2 (5%)

Arizona Fish References

AZGFD, Arizona Game and Fish Department: <http://www.azgfd.gov>.

ASIH, Am Society of Ichthyologists & Herpetologists: <http://asih.org>.

Burkhead, N. M. 2012. Extinction rates in North American freshwater fishes, 1900-2010. *BioScience*, 62: 798 – 808

Miller, R. R., and C.H. Lowe. 1964. Fishes of Arizona. Pages 133-151 *in* Lowe, C.H., Ed. The vertebrates of Arizona. University of AZ Press, Tucson. 270 p.

Nelson J.S., E.J. Crossman, H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, and J.D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico, 6th ed. American Fisheries Society, Bethesda, MD. 386 p.

NANFA, N. Am. Native Fishes Association: <http://www.nanfa.org>.

Smithsonian National Museum of Natural History. Department of Vertebrate Zoology, Division of Fishes: <http://vertebrates.si.edu/fishes/>

Turner, D.S. and M.D. List. 2007. Habitat mapping and conservation analysis to identify critical streams for Arizona’s native fish. *Aquatic Conservation* 17: 737-748.

U.S. Fish and Wildlife Service: <http://www.fws.gov>.

Arizona Fish Checklist

See page 10 for conservation status symbol definitions.

ARIZONA FISH			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
American Eel	<i>Anguilla rostrata</i>	SEH	
Apache Trout	<i>Oncorhynchus apache</i>	S3	LT
Arctic Grayling	<i>Thymallus arcticus</i>	SE1	No
Bairdiella	<i>Bairdiella icistia</i>	SEH	
Beautiful Shiner	<i>Cyprinella formosa</i>	S1	LT

ARIZONA FISH			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	SE1	
Black Buffalo	<i>Ictiobus niger</i>	SE1	
Black Bullhead	<i>Ameiurus melas</i>	SE5	
Black Crappie	<i>Pomoxis nigromaculatus</i>	SE5	
Blue Catfish	<i>Ictalurus furcatus</i>	SE1	
Blue Tilapia	<i>Oreochromis aureus</i>	SE5	
Bluegill	<i>Lepomis macrochirus</i>	SE5	
Bluehead Sucker	<i>Catostomus discobolus</i>	S3	PS
Bluehead Sucker	<i>Catostomus discobolus discobolus</i>	S3	
Bonytail	<i>Gila elegans</i>	S1	LE
Brook Trout	<i>Salvelinus fontinalis</i>	SE5	
Brown Bullhead	<i>Ameiurus nebulosus</i>	SE1	
Brown Trout	<i>Salmo trutta</i>	SE5	
Channel Catfish	<i>Ictalurus punctatus</i>	SE5	
Coho Salmon	<i>Oncorhynchus kisutch</i>	SE2	
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	S1	LE,XN
Common Carp	<i>Cyprinus carpio</i>	SE5	
Convict Cichlid	<i>Cichlasoma nigrofasciatum</i>	SE	
Cutthroat Trout	<i>Oncorhynchus clarkii</i>	SE3	No
Desert Pupfish	<i>Cyprinodon macularius</i>	S1	LE

ARIZONA FISH			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Desert Sucker	<i>Catostomus clarkii</i>	S3S4	SC
Fathead Minnow	<i>Pimephales promelas</i>	SE5	
Flannelmouth Sucker	<i>Catostomus latipinnis</i>	S2	SC
Flathead Catfish	<i>Pylodictis olivaris</i>	SE4	
Gila Chub	<i>Gila intermedia</i>	S2	LE
Gila Longfin Dace	<i>Agosia chrysogaster chrysogaster</i>	S3S4	SC
Gila Topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	S1S2	LE
Gila Trout	<i>Oncorhynchus gilae</i>	S1	LT
Golden Shiner	<i>Notemigonus crysoleucas</i>	SE4	
Golden Trout	<i>Oncorhynchus mykiss aguabonita</i>	SE1	
Goldfish	<i>Carassius auratus</i>	SE4	
Grass Carp	<i>Ctenopharyngodon idella</i>	SE2	
Green Sunfish	<i>Lepomis cyanellus</i>	SE5	
Green Swordtail	<i>Xiphophorus hellerii</i>	SE1	
Guppy	<i>Poecilia reticulata</i>	SE1	
Headwater Chub	<i>Gila nigra</i>	S2	C
Humpback Chub	<i>Gila cypha</i>	S1	LE
Largemouth Bass	<i>Micropterus salmoides</i>	SE5	
Little Colorado Spinedace	<i>Lepidomeda vittata</i>	S1S2	LT
Little Colorado Sucker	<i>Catostomus sp. 3</i>	S2	SC

ARIZONA FISH			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Loach Minnow	<i>Tiaroga cobitis</i>	S1	LE
Longfin Dace	<i>Agosia chrysogaster</i>	S3S4	SC
Longjaw Mudsucker	<i>Gillichthys mirabilis</i>	SE2	
Machete	<i>Elops affinis</i>	SA	
Mexican Stoneroller	<i>Campostoma ornatum</i>	S1	SC
Mexican Tetra	<i>Astyanax mexicanus</i>	SEH	
Mosquitofish	<i>Gambusia affinis</i>	SE5	
Mottled Sculpin	<i>Cottus bairdii</i>	SE1	
Mozambique Tilapia	<i>Oreochromis mossambicus</i>	SE4	
Northern Pike	<i>Esox lucius</i>	SE3	
Orangemouth Corvina	<i>Cynoscion xanthulus</i>	SEH	
Plains Killifish	<i>Fundulus zebrinus</i>	SE1	
Pumpkinseed	<i>Lepomis gibbosus</i>	SE2	
Quitobaquito Pupfish	<i>Cyprinodon eremus</i>	S1	LE
Rainbow Trout	<i>Oncorhynchus mykiss</i>	SE5	
Razorback Sucker	<i>Xyrauchen texanus</i>	S1	LE
Red Shiner	<i>Notropis lutrensis</i>	SE5	
Redbelly Tilapia	<i>Tilapia zillii</i>	SE1	
Redear Sunfish	<i>Lepomis microlophus</i>	SE4	
Reside Shiner	<i>Richardsonius balteatus</i>	SE2	

ARIZONA FISH			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Rio Grande Sucker	<i>Catostomus plebeius</i>	SER	
Rock Bass	<i>Ambloplites rupestris</i>	SEH	
Roundtail Chub	<i>Gila robusta</i>	S2	C*
Sacramento Perch	<i>Archoplites interruptus</i>	SEH	
Sailfin Molly	<i>Poecilia latipinna</i>	SE3	
Sand Shiner	<i>Notropis stramineus</i>	SEH	
Santa Cruz Pupfish	<i>Cyprinodon arcuatus</i>	SX	
Sargo	<i>Anisotremus davidsonii</i>	SE1	
	<i>Poeciliopsis occidentalis</i>	S2	LE
Shortfin Molly	<i>Poecilia mexicana</i>	SE1	
Smallmouth Bass	<i>Micropterus dolomieu</i>	SE5	
Smallmouth Buffalo	<i>Ictiobus bubalus</i>	SE1	
Sockeye Salmon	<i>Oncorhynchus nerka</i>	SE1	
Sonora Chub	<i>Gila ditaenia</i>	S1	LT
Sonora Sucker	<i>Catostomus insignis</i>	S3	SC
Speckled Dace	<i>Rhinichthys osculus</i>	S3S4	SC
Spikedace	<i>Meda fulgida</i>	S1	LE
Spottail Shiner	<i>Notropis venustus</i>	SEH	
Spotted Bass	<i>Micropterus punctulatus</i>	SEH	
Spotted Sleeper	<i>Eleotris picta</i>	SA	

ARIZONA FISH			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Striped Bass	<i>Morone saxatilis</i>	SE4	
Striped Mullet	<i>Mugil cephalus</i>	S1	
Threadfin Shad	<i>Dorosoma petenense</i>	SE5	
Utah Chub	<i>Gila atraria</i>	SE1	
Utah Sucker	<i>Catostomus ardens</i>	SEH	
Variable Platyfish	<i>Xiphophorus variatus</i>	SE1	
Virgin River Chub	<i>Gila seminuda</i>	S1	LE
Virgin Spinedace	<i>Lepidomeda mollispinis</i>	S1	No
Virgin Spinedace	<i>Lepidomeda mollispinis mollispinis</i>	S1	SC
Walking Catfish	<i>Clarias batrachus</i>	SER	
Walleye	<i>Sander vitreus</i>	SE4	
Warmouth	<i>Lepomis gulosus</i>	SE3	
White Bass	<i>Morone chrysops</i>	SE2	
White Crappie	<i>Pomoxis annularis</i>	SE1	
White Sturgeon	<i>Acipenser transmontanus</i>	SHE	No
Woundfin	<i>Plagopterus argentissimus</i>	S1	LE,XN
Yaqui Catfish	<i>Ictalurus pricei</i>	S1	LT
Yaqui Chub	<i>Gila purpurea</i>	S1	LE
Yaqui Longfin Dace	<i>Agosia chrysogaster ssp. 1</i>	S1	SC
Yaqui Sucker	<i>Catostomus bernardini</i>	SX	

Grasshoppers and Other Singing Insects

Grasshoppers are members of the Orthoptera, one of the most familiar insect orders. Orthoptera includes two suborders: Caelifera (Grasshoppers and relatives) and Ensifera (Crickets, Katydid, and Gryllacridoids). Our knowledge of distribution and conservation status for these groups is limited. I included a partial checklist for Grasshoppers to provide a starting place for recording sightings.

Most singing insects are herbivores. Their occasional population explosions can reduce farm profits, and have led to emphasis on eradication. Protection deserves more consideration. Orthoptera are all important biomass recyclers, and all serve as essential sources of food for other animals. In fact, use of insects for human food is growing in popularity. As the human population continues to swell, the proportion experiencing the culinary delights of bug dining will grow. We have to wait to see if Grasshopper ranches help textured soy protein replace sirloin.

Orthoptera suffer from our toxic wastes and habitat destruction just as other species groups do. Farms, roads, and buildings are concentrated in valleys near lakes and streams. Our selective use of these more productive areas alters the size and composition of insect populations. Our impacts reduce ecosystem diversity, stability, and productivity. The references listed in the Singing Insects of North America website (<http://entnemdept.ufl.edu/walker/buzz/index.htm>) and in the list below are good places to start to learn more about the ecological importance of these insects.

Grasshoppers

Many of the 400 Grasshopper species known to occur in the western U.S. may be present in Arizona, but I verified only 59 species from the USDA fact sheets (USDA and Pfadt, 2002) and 35 from the Arizona Game and Fish Department (AZGFD–October 2013) website. The checklist includes these 94 species.

The USDA fact sheets include maps, photographs, and descriptions of each species. The Bug Guide (see references) has more information for some species.

Crickets

Male Crickets calling for mates by rubbing their forewings together are a common sound on warm summer nights. The tone and frequency of the chirps varies with temperature. Adding 40 to the number of chirps in 13 seconds yields an accurate measure of the degrees Fahrenheit.

The website, Singing Insects of North America (<http://entnemdept.ufl.edu/walker/buzz/index.htm>) by Thomas J. Walker (Crickets and Katydid) and

Thomas E. Moore (Cicadas) provides a visual key to the nine families and subfamilies of North American Crickets north of Mexico. It provides information on 130 species. House and field Crickets of the Gryllinae subfamily are the most familiar. Distribution maps on the website show the following five species are present in central Arizona.

- *Gryllita arizonae* – Arizona Cricket
- *Gryllodes sigillatus* – Tropical House Cricket
- *Gryllus integer* – Western Stutter-trilling Cricket
- *Gryllus multipulsator* – Long-chirp Field Cricket
- *Gryllus pennsylvanicus* – Fall Field Cricket

Katydids



Specialists report 350 species of Katydids in two families and six subfamilies in North America north of Mexico. Two species of the *Microcentrum* genus occur near my home in central Arizona. It would be possible to use the range maps on the Singing Insects of North America website to compile a rough checklist for Arizona—perhaps for the next Notebook edition.

Photograph: The katydid in the photo is probably the Greater Angle-wing Katydid (*Microcentrum Rhombifolium*). It is common in central Arizona where I live. According to the BugGuide (<http://bugguide.net/node/view/336585>) website, the similar California Angle-wing (*Microcentrum californicum*) also occurs in central Arizona.

Singing Insects References and Notes

The [Naturalist's Bookstore](#) has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.

Arnett, R.H. 2000. American insects: A handbook of the insects of America north of Mexico. 2nd Edition. CRC Press. 1024 p.

Bug Guide. www.bugguide.net.

Capinera, J.L, R.D. Scott, and T. J. Walker. 2004. Field guide to Grasshoppers, katydids, and crickets of the United States. Cornell University Press, Ithaca, NY 249 p.

Orthopterists' Society. <http://140.247.119.225/OrthSoc>.

Pfadt, R.E. 2002. Field guide to common western Grasshoppers: Third edition. Bulletin 912. Wyoming Agricultural Experiment Station, University of Wyoming, Laramie, WY. 288 p.

Pfadt, R.E. n.d. Grasshopper species fact sheets. Bulletin 912. Wyoming Agricultural Experiment Station, University of Wyoming, Laramie, WY.

Singing Insects of North America. <http://entnemdept.ufl.edu/walker/buzz/index.htm>

USDA. http://www.sidney.ars.usda.gov/Grasshopper/ID_Tools/F_Sheets/index.htm.

Walker, T.J., and T.E. Moore. Singing Insects of North America.

Arizona Grasshopper Checklist

Insufficient data was available to list other singing insects. See page 10 for conservation status symbol definitions.

ARIZONA GRASSHOPPERS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Admirable Grasshopper	<i>Syrbula admirabilis</i>	S?	
Atascosa Gem Grasshopper	<i>Aztecacris gloriosus</i>	S1	
Ball's Monkey Grasshopper	<i>Eumorsea balli</i>	S1	
Bigheaded Grasshopper	<i>Aulocara ellioti</i>	S?	
Bluelegged Grasshopper	<i>Metator pardalinus</i>	S?	
Broad-legged Pygmy Grasshopper	<i>Paratettix schochi</i>	S?	
Brownspeckled Grasshopper	<i>Psoloessa delicatula</i>	S?	
Bruner slantfaced Grasshopper	<i>Bruneria brunnea</i>	S?	
Bruner spurthroated Grasshopper	<i>Melanoplus bruneri</i>	S?	
Carolina Grasshopper	<i>Dissosteira Carolina</i>	S?	
Clearwinged Grasshopper	<i>Camnula pellucid</i>	S?	
Clubhorned Grasshopper	<i>Aeropedellus clavatus</i>	S?	
Contrast Spur-throat Grasshopper	<i>Melanoplus discolor</i>	S?	

ARIZONA GRASSHOPPERS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Crenulatewinged Grasshopper	<i>Cordillacris crenulata</i>	S?	
Dawson Grasshopper	<i>Melanoplus dawsoni</i>	S?	
Devastating Grasshopper	<i>Melanoplus devastator</i>	S?	
Differential Grasshopper	<i>Melanoplus differentialis</i>	S?	
Dusky Grasshopper	<i>Encoptolophus costalis</i>	S?	
Ebony Grasshopper	<i>Boopedon nubilum</i>	S?	
Flabellate Grasshopper	<i>Melanoplus occidentalis</i>	S?	
Fourspotted Grasshopper	<i>Phlibostroma quadrimaculatum</i>	S?	
Fuzzy olive-green Grasshopper	<i>Campylacantha olivacea</i>	S?	
Gladston Grasshopper	<i>Melanoplus gladstoni</i>	S?	
Grasshopper	<i>Aeoloplides chenopodii</i>	S?	
Grasshopper	<i>Ageneotettix saluator</i>	S?	
Grasshopper	<i>Clematodes vanduzeei</i>	S?	
Grasshopper	<i>Conalcaea cantralli</i>	S?	
Grasshopper	<i>Opeia atascosa</i>	S?	
Grasshopper	<i>Trimerotropis arizonensis</i>	S?	
Grasshopper	<i>Melanoplus sp. 21</i>	S?	
Grasshopper	<i>Melanoplus sp. 52</i>	S?	
Green fool Grasshopper	<i>Acrolophitus hirtipes</i>	S?	
Greenstriped Grasshopper	<i>Chortophaga viridifasciata</i>	S?	

ARIZONA GRASSHOPPERS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Hayden Grasshopper	<i>Derotmema haydeni</i>	S?	
Huachuca Grasshopper	<i>Conalcaea huachucana</i>	S?	
Humphrey's Grasshopper	<i>Barytettix humphreysi</i>	S?	
Keeler Grasshopper	<i>Melanoplus keeleri</i>	S?	
Kiowa Grasshopper	<i>Trachyrhachys kiowa</i>	S?	
Lakin Grasshopper	<i>Melanoplus lakinus</i>	S?	
Largeheaded Grasshopper	<i>Phoetaliotes nebrascensis</i>	S?	
Lichen Grasshopper	<i>Leuronotina ritensis</i>	S1	
Little Spurthroated Grasshopper	<i>Melanoplus infantilis</i>	S?	
Meadow Grasshopper	<i>Chorthippus curtipennis</i>	S?	
Migratory Grasshopper	<i>Melanoplus sanguinipes</i>	S?	
Monkey Grasshopper	<i>Morsea dumicola</i>	S?	
Monkey Grasshopper	<i>Morsea kaibabensis</i>	S?	
Mottled sand Grasshopper	<i>Spharagemon collare</i>	S?	
Narrowwinged sand Grasshopper	<i>Melanoplus angustipennis</i>	S?	
Navajo Jerusalem Cricket	<i>Stenopelmatus navajo</i>	S1S3	SC
NV Point-headed Grasshopper	<i>Acrolophitus nevadensis</i>	S?	
Nevada sage Grasshopper	<i>Melanoplus rugglesi</i>	S?	
Oak Leaf Grasshopper	<i>Tomonotus ferruginosus</i>	S?	
Obscure Grasshopper	<i>Opeia obscura</i>	S?	
Orangelegged Grasshopper	<i>Spharagemon equale</i>	S?	

ARIZONA GRASSHOPPERS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Packard Grasshopper	<i>Melanoplus packardii</i>	S?	
Painted Grasshopper	<i>Dactylotum bicolor</i>	S?	
Pallidwinged Grasshopper	<i>Trimerotropis pallidipennis</i>	S?	
Panther-spotted Grasshopper	<i>Poecilottetix pantherinus</i>	S?	
Pasture Grasshopper	<i>Melanoplus confuses</i>	S?	
Pictured Spur-throat Grasshopper	<i>Melanoplus pictus</i>	S?	
Pinaleno Monkey Grasshopper	<i>Eumorsea pinaleno</i>	S1S3	SC
Pinaleno Short-wing Grasshopper	<i>Melanoplus pinaleno</i>	S1	
Plains lubber Grasshopper	<i>Brachystola magna</i>	S?	
Red Whiskers Grasshopper	<i>Melanoplus desultorius</i>	S?	
Redlegged Grasshopper	<i>Melanoplus femurrubrum</i>	S?	
Redshanked Grasshopper	<i>Xanthippus corallipes</i>	S?	
Redwinged Grasshopper	<i>Arphia pseudonietana</i>	S?	
Rocky Mountain Grasshopper	<i>Melanoplus spretus</i>	S?	
Rufous Grasshopper	<i>Heliaula rufa</i>	S?	
Sagebrush Grasshopper	<i>Melanoplus bowditchi</i>	S?	
Snakeweed Grasshopper	<i>Hesperotettix viridis</i>	S?	
Snow's Toothpick Grasshopper	<i>Prorocorypha snowi</i>	S1	
Specklewinged Grasshopper	<i>Arphia conspersa</i>	S?	
Spottedwinged Grasshopper	<i>Cordillacris occipitalis</i>	S?	

ARIZONA GRASSHOPPERS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Spur-throat Grasshopper	<i>Melanoplus chiricahuae</i>	S1	
Spur-throat Grasshopper	<i>Melanoplus femurnigrum</i>	S?	
Spur-throat Grasshopper	<i>Melanoplus franciscanus</i>	S?	
Spur-throat Grasshopper	<i>Melanoplus magdalenae</i>	S?	
Spur-throat Grasshopper	<i>Melanoplus snowii</i>	S?	
Spur-throat Grasshopper	<i>Melanoplus splendidus</i>	S?	
Spur-throat Grasshopper	<i>Melanoplus truncatus</i>	S?	
Striped Grasshopper	<i>Amphitornus coloradus</i>	S?	
Striped Sand Grasshopper	<i>Melanoplus foedus</i>	S?	
Texas spotted range Grasshopper	<i>Psoloessa texana</i>	S?	
Threebanded Grasshopper	<i>Hadrotettix trifasciatus</i>	S?	
Two-strip slantfaced Grasshopper	<i>Mermiria bivittata</i>	S?	
Two-striped Grasshopper	<i>Melanoplus bivittatus</i>	S?	
Valley Grasshopper	<i>Oedaleonotus enigma</i>	S?	
Velvetstriped Grasshopper	<i>Eritettix simplex</i>	S?	
Wedge Spur-throat Grasshopper	<i>Melanoplus cuneatus</i>	S?	
Whitecrossed Grasshopper	<i>Aulocara femoratum</i>	S?	
Whitewiskered Grasshopper	<i>Ageneotettix deorum</i>	S?	
Wyoming toothpick Grasshopper	<i>Paropomala wyomingensis</i>	S?	
Yellowish spurthroat Grasshopper	<i>Melanoplus flavidus</i>	S?	

Lizards

Children like lizards almost as much as they like turtles. Lizards are not as easy to play with, but they are very brave and colorful, and some are easy to catch. If you haven't tried to pick up a ground hugging Horned Lizard (aka Horny Toad), or seen one squirt blood from its eyes you've missed out on two of life's finest experiences. It's hard to imagine how blood squirting from one's eyes evolved as a defense, but I've read that the blood is distasteful to some predators. When threatened, Horned Lizards and many other species puff up their bodies and do pushups to appear larger and scarier. Some lizards have replaceable tails. When cornered, they wave their tails to lure predators into striking that detachable and replaceable appendage.



The photograph shows a Plateau Fence Lizard. These lizards do like fences, but they will sit on any convenient object that gives them an elevated view. They live throughout central and northern Arizona.

Newly hatched lizards have to begin hunting food immediately. Only the young of a few skink species receive any parental care, and then not much. A tiny tree lizard less than one inch long will investigate every small object it finds. Since anything might be dangerous instead of delicious,

these tiny creatures will approach a twig, pebble, or clod of dirt, do some pushups, and then try a bite. Tiny slugs, ants, and other small arthropods are what they need. Bite-sized morsels themselves, most baby lizards don't grow up. Those that do join the ranks of one of our most important regulators of bug populations.

Lizards are not descended from dinosaurs. They appeared about the same time and lived with dinosaurs, but they are not closely related. Lizard legs extend to the sides of the body rather than projecting downward or forward. Lizards became a separate group over 200 million years ago.

More than half of the lizard species found in the U.S. live in Arizona. Lizards are the principal regulators of ants, termites, and other insects. With one exception, the Gila Monster, Arizona lizards are harmless. Field guides are available online (Arizona Herpetological Association, Brennan, 2008), and in print (Jones and Lovich, 2009, and Stebbins, 1966).

Lizard Species Numbers

These numbers are from Gibbons et al. (2000) and AZGFD (2013). The Arizona numbers include subspecies and sub populations).

- World: 5,000
- U.S.: 100
- Arizona Total Lizard Species: 69
- Arizona Native Lizards Species: 67
- Arizona Natives Imperiled, Vulnerable, or of Possible Long-Term Concern: 39 (58%)
- ESA Arizona Lizards of Concern: 11 (16%)

Arizona Lizard Conservation

Arizona’s lizard species are declining in response to human developments. Roads, houses, pesticides, invasive species, and wildfire are eroding their numbers. Lizards have almost no ability to survive their encounters with people. Easily captured, they are often imprisoned for life.

Further information on conservation is available on the Internet sites listed in the references. The Partners in Amphibian and Reptile Conservation (PARC) website provides access to special reports and newsletters about lizards. Jones and Lovich (2009) give a good discussion of lizard conservation.

Arizona Lizard References

The Naturalist’s Bookstore has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.

AZGF (Arizona Game and Fish Department) <http://www.azgfd.gov>.

Arizona Herpetological Association: <http://www.azreptiles.com>.

Brennan, T.C. 2008. Online field guide to reptiles and amphibians of Arizona: <http://www.reptilesfaz.com/>.

Gibbons, J.W., D.E. Scott, T.J. Ryan, K.A. Buhlmann, T.D. Tuberville, B.S. Metts, J.L. Greene, T. Mills, Y. Leiden, S. Poppy, and C.T. Winne. 2000. The global decline of reptiles, déjà vu amphibians. *BioScience* 50: 653-666.

Herpetological Education & Research Project: <http://www.naherp.com>. Numerous photographs of Arizona amphibians and reptiles.

International Reptile Conservation Fund: <http://www.ircf.org/>.

Jones, L.L.C., and R.E. Lovich, eds. 2009. *Lizards of the American Southwest: A photographic field guide*. Rio Nuevo Publishers, Tucson, AZ. 567 p.

PARC (Partners Amphibian Reptile Conservation): <http://www.parcplace.org/>.

Stebbins, R.C. 1966. *A field guide to western reptiles and amphibians*. Houghton Mifflin, Boston, MA. 279 p.

Notes

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Arizona Lizards Checklist

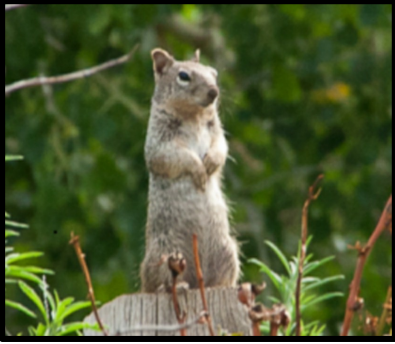
See page 10 for conservation status symbol definitions.

ARIZONA LIZARDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Arizona Alligator Lizard	<i>Elgaria kingii nobilis</i>	S5	
Arizona Chuckwalla	<i>Sauromalus ater</i> (Arizona Pop)	S4	SC
Arizona Night Lizard	<i>Xantusia arizonae</i>	S1	
Arizona Striped Whiptail	<i>Aspidoscelis arizonae</i>	S1S2	
Banded Gila Monster	<i>Heloderma suspectum cinctum</i>	S4	SC
Bezy's Night Lizard	<i>Xantusia bezyi</i>	S2	
Chihuahuan Greater Earless	<i>Cophosaurus texanus scitulus</i>	S5	
Chihuahuan Spotted Whiptail	<i>Aspidoscelis exsanguis</i>	S2	
Clark's Spiny Lizard	<i>Sceloporus clarkii</i>	S5	
Common Checkered Whiptail	<i>Aspidoscelis tessellata</i>	S?	
Common Chuckwalla	<i>Sauromalus ater</i>	S4	SC
Common Lesser Earless Lizard	<i>Holbrookia maculata</i>	S5	
Common Sagebrush Lizard	<i>Sceloporus graciosus</i>	S3S4	
Common Side-blotched Lizard	<i>Uta stansburiana</i>	S5	
Desert Banded Gecko	<i>Coleonyx variegatus variegatus</i>	S?	
Desert Grassland Whiptail	<i>Aspidoscelis uniparens</i>	S5	
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>	S5	
Desert Iguana	<i>Dipsosaurus dorsalis</i>	S5	
Desert Night Lizard	<i>Xantusia vigilis</i>	S4	

ARIZONA LIZARDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Desert Spiny Lizard	<i>Sceloporus magister</i>	S5	
Eastern Collared Lizard	<i>Crotaphytus collaris</i>	S5	
Fence/Prairie/Plateau Lizard	<i>Sceloporus undulatus</i>	SRF	
Flat-tailed Horned Lizard	<i>Phrynosoma mcallii</i>	S2	SC
Giant Spotted Whiptail	<i>Aspidozelis stictogramma</i>	S2	SC
Gila Monster	<i>Heloderma suspectum</i>	S4	
Gila Spotted Whiptail	<i>Aspidozelis flagellicauda</i>	S4	
Gilbert's Skink	<i>Plestiodon "gilberti"</i>	S3S4	
Glen Canyon Chuckwalla	<i>Sauromalus ater (Glen Canyon Pop)</i>	S2?	SC
Goode's Horned Lizard	<i>Phrynosoma goodei</i>	S3S4	
Great Basin Collared Lizard	<i>Crotaphytus bicinctores</i>	S4	
Great Plains Skink	<i>Plestiodon obsoletus</i>	S5	
Greater Earless Lizard	<i>Cophosaurus texanus</i>	S5	
Greater Short-Horned Lizard	<i>Phrynosoma hernandesi</i>	S4	
Little Striped Whiptail	<i>Aspidozelis inornata</i>	SRF	
Long-nosed Leopard Lizard	<i>Gambelia wislizenii</i>	S5	
Long-tailed Brush Lizard	<i>Urosaurus graciosus</i>	S5	
Madrean Alligator Lizard	<i>Elgaria kingii</i>	S5	
Many-lined Skink	<i>Plestiodon multivirgatus</i>	S3S4	
Mediterranean Gecko	<i>Hemidactylus turcicus</i>	SE5	

ARIZONA LIZARDS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Mohave Fringe-toed Lizard	<i>Uma scoparia</i>	S1	
Mountain Skink	<i>Plestiodon callicephalus</i>	S2	
New Mexico Whiptail	<i>Aspidoscelis neomexicana</i>	S?	
Northern Sagebrush Lizard	<i>Sceloporus graciosus graciosus</i>	S3S4	SC
Ornate Tree Lizard	<i>Urosaurus ornatus</i>	S5	
Pai Striped Whiptail	<i>Aspidoscelis pai</i>	S1	
Plateau Striped Whiptail	<i>Aspidoscelis velox</i>	S5	
Redback Whiptail	<i>Aspidoscelis xanthonota</i>	S2	SC
Regal Horned Lizard	<i>Phrynosoma solare</i>	S5	
Reticulate Gila Monster	<i>Heloderma suspectum suspectum</i>	S4	
Round-tailed Horned Lizard	<i>Phrynosoma modestum</i>	S3	
See: <i>Uma rufopunctata</i>	<i>Uma notata</i>	SRF	
Slevin's Bunchgrass Lizard	<i>Sceloporus slevini</i>	S2	
Sonoran Collared Lizard	<i>Crotaphytus nebrius</i>	S3S4	
Sonoran Spotted Whiptail	<i>Aspidoscelis sonorae</i>	S5	
Southern Desert Horned Lizard	<i>Phrynosoma platyrhinos calidiarum</i>	S5	
Striped Plateau Lizard	<i>Sceloporus virgatus</i>	S3	
Texas Horned Lizard	<i>Phrynosoma cornutum</i>	S3S4	SC
Tiger Whiptail	<i>Aspidoscelis tigris</i>	S5	
Tucson Banded Gecko	<i>Coleonyx variegatus bogerti</i>	S?	

Mammals

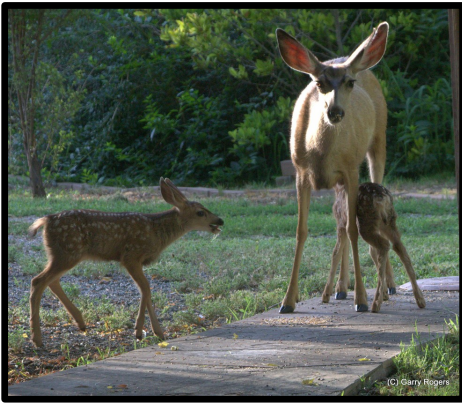


Rock Squirrel

I always feel closer to mammals than other species groups. The Rock Squirrel (*Spermophilus variegatus*) in the photograph is a member of the local colony that lives in the retreating face of eroding lake sediments back of my house. Though they live in burrows and harvest seeds and fallen fruit, these squirrels are great climbers. I often see them in the tops of the pear trees picking fresh fruit and the tops of willow trees eating tender buds. They routinely gather fallen seeds beneath the bird feeders, and it

is there that some become nervously tolerant of my presence.

The least skittish of my neighbors are the raccoons who love to slip in the cat door and eat cat food, the skunks who stroll by brushing my leg in the dark, and the javelina, coyotes, and deer who often stand and return my stare.



Mule Deer

The three- or four-day-old Mule Deer fawns in the photo were the second births here at Coldwater Farm. The fawn on the left zipped and bounded about ecstatic with energy and curiosity. Deer were rare visitors before 2012, but now (2015), one or a few visit the yard every morning.

Mule Deer are showing up in yards and gardens across the western U.S. Our continuing drought is limiting forage production, and combined with our incessant pumping, the

drought is drying up some springs, forcing wildlife to search for water in the valley floors.

We are happy to have deer visit. They are eating our weeds, pruning all of our shrubs and trees, and eating unfenced garden vegetables. They love to help the birds and squirrels clean up the sunflower and millet seeds I scatter each morning.

Western U.S. deer populations are shrinking. Well-known causes include livestock grazing, farming, construction, and hunting. The two small creatures that visited my yard in the first exciting days of their lives could be shot and killed within the next two or three years. Nevertheless, we will continue to provide our bit of support to the deer, and we are encouraging our neighbors to do so as well.

Identifying Arizona Mammals

Numerous mammal field guides and websites are available (e.g., Kays and Wilson, 2002, National Wildlife Federation, AZGDF). You can assemble and download an excellent field guide to Arizona's mammals from the North American Mammals page of the Smithsonian Institution's National Museum of Natural History web site (see the references). The downloaded field guide will have a page for each species with a picture, distribution map, and description.

Arizona Mammal Conservation

The recent WWF report (2014) states that more than half the Earth's vertebrates have disappeared since 1970. AZGDF considers 67% of Arizona's mammals at risk of extinction.

Mammal Species Numbers

- World: 1,200
- U.S.: 400
- Arizona Mammals: 214
- Arizona Natives: 203
- Arizona Natives at Risk of Extinction (S1 to S4): 123
- ESA Arizona Mammals Listed Endangered: 8
- ESA Arizona Mammals Listed Threatened: 2
- ESA Arizona Mammals Endangered or Threatened: 3
- ESA Arizona Mammals of Concern: 31

Bats

When I moved to Coldwater Farm 17 years ago, bats were a common evening sight. I began seeing them less often, and 10 years ago, I erected a bat house using plans from the Tuttle and Hensley (2000) book. Bats were slow to use the house. Five years after I put it up, the house held only 11 bats. There are none using the house now. I saw one bat on a cool, clear evening last spring, but none since then. I don't know why.

According to the October 10, 2013 report by AZGDF, there are 33 Arizona species. All but two are of concern. Bats are included in the mammal numbers above.

Bat Species Numbers

- World: 1,200+
- U.S.: 45
- Arizona: 33
- Arizona Species of Concern (S1 to S3): 28 (85%)

- ESA Arizona Bats Listed Endangered: 1 (and one partial)
- ESA Arizona Bats of Concern: 15

References for Arizona Mammals

The Naturalist's Bookstore has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.

American Society of Mammalogists: <http://www.mammalsociety.org>

Arizona Bat Resource Group. <http://on.fb.me/150L4FQ>.

Arizona Game and Fish Department (AZGFD). List of "nongame" species includes bats: <http://bit.ly/YOa6og>. AZGFD has a bat conservation plan, but the plan needs to be updated.

Bat Conservation International: <http://www.batcon.org/>.

Bats. Kunz Bat Lab: <http://www.bu.edu/cecb/BATS/>.

Carson, R. 1962. Silent spring. Houghton Mifflin, New York. 400 p.

Defenders of Wildlife: <http://www.defenders.org>. News: www.defendersblog.org.

Genoways, T. August 30, 2011. The Man Who Loved Bats. On Earth News.

Halfpenny, J.C., and T. Telander. 2000. Scats and tracks of the desert southwest: A field guide to the signs of 70 wildlife species. The Globe Pequot Press, Guilford, CN. 144 p.

Hinman, K.E., and T.K. Snow. 2003. Arizona Bat Conservation Strategic Plan. Nongame Branch, Wildlife Management Division, Region 5, Field Operations Division, Arizona Game and Fish Department. 173 p. (Available online at: <http://bit.ly/ZjDvTV>).

Hoffa, R.L., and W. Anderson. 1996. Coexisting with urban wildlife: A guide to the central Arizona uplands. Sharlot Hall Museum Press, Prescott, AZ. 123 p.

Kays, R.W., and D.E. Wilson. 2009. Mammals of North America (second edition). Princeton Univ Press, Princeton, NJ. 248 p.

National Wildlife Federation: www.nwf.org.

Organization for Bat Conservation: <http://www.batconservation.org/>

Pesticide Action Network, North America: <http://www.panna.org>.

Smithsonian National Museum of Natural History: www.mnh.si.edu and for conservation status: http://www.mnh.si.edu/mna/search_status.cfm

Tuttle, M.D., and D. L. Hensley. 2000. The bat house builder's handbook. Bat Conservation International, Austin, TX. 36 p.

U.S. Endangered Species Act. 1973. The act and related laws are discussed at: <http://www.fws.gov/laws/lawsdigest/ESACT.html>.

U. S. Fish and Wildlife Service: <http://www.fws.gov>.

Western Bat Working Group: <http://www.wbwg.org>.

WhiteNoseSyndrome.org.

World Conservation Union: www.iucn.org.

World Wildlife Fund (<http://panda.org>).

Arizona Mammal Checklist

See page 10 for conservation status symbol definitions.

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Abert's Chuska Squirrel	<i>Sciurus aberti chuscensis</i>	S3	
Abert's Squirrel	<i>Sciurus aberti</i>	S5	
Allen's Lappet-browed Bat	<i>Idionycteris phyllotis</i>	S2S3	SC
America Pronghorn Antelope	<i>Antilocapra americana americana</i>	S5	
American Badger	<i>Taxidea taxus</i>	S3S4	
American Beaver	<i>Castor canadensis</i>	S4	
American Bison	<i>Bos bison</i>	SRFSC	No
American Black Bear	<i>Ursus americanus</i>	S5	No
American Pika	<i>Ochotona princeps</i>	SRF	
American Water Shrew	<i>Sorex palustris</i>	S1	
Antelope Jackrabbit	<i>Lepus alleni</i>	S3	
Apache Pocket Mouse	<i>Perognathus flavescens caryi</i>	S1	
Apache Pocket Mouse	<i>Perognathus flavescens melanotis</i>	SH	
Arizona Cotton Rat	<i>Sigmodon arizonae</i>	S4	
Arizona Gray Squirrel	<i>Sciurus arizonensis</i>	S4	
Arizona Montane Vole	<i>Microtus montanus arizonensis</i>	S4	
Arizona Myotis	<i>Myotis occultus</i>	S3	SC

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Arizona Pocket Mouse	<i>Perognathus amplus</i>	S5	
Arizona Shrew	<i>Sorex arizonae</i>	S2	SC
Bailey's Pocket Mouse	<i>Chaetodipus baileyi</i>	S5	
Banner-tailed Kangaroo Rat	<i>Dipodomys spectabilis</i>	S5	
Barbary Sheep or Aoudad	<i>Ammotragus lervia</i>	SER	
Big Brown Bat	<i>Eptesicus fuscus</i>	S4S5	
Big Free-tailed Bat	<i>Nyctinomops macrotis</i>	S3	SC
Black or House Rat	<i>Rattus rattus</i>	SE1	
Black-eared Mouse	<i>Peromyscus melanotis</i>	SRF	
Black-footed Ferret	<i>Mustela nigripes</i>	SXS1	LEXN
Black-tailed Jackrabbit	<i>Lepus californicus</i>	S5	
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	SXS1	SC
Bobcat	<i>Lynx rufus</i>	S5	No
Botta's Pocket Gopher	<i>Thomomys bottae</i>	S5	
Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>	S3S4	
Brush Mouse	<i>Peromyscus boylii</i>	S5	
Bushy-tailed Woodrat (Packrat)	<i>Neotoma cinerea</i>	S5	
Cactus Mouse	<i>Peromyscus eremicus</i>	S5	
California Leaf-nosed Bat	<i>Macrotus californicus</i>	S3	SC
California Myotis	<i>Myotis californicus</i>	S4	
Camp Verde Cotton Rat	<i>Sigmodon arizonae arizonae</i>	SH	

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Canada Lynx	<i>Lynx canadensis</i>	SRX	LT
Canyon Bat	<i>Parastrellus hesperus</i>	S5	
Canyon Mouse	<i>Peromyscus crinitus</i>	S4	
Cave Myotis	<i>Myotis velifer</i>	S3S4	SC
Chihuahuan Pronghorn Antelope	<i>Antilocapra americana mexicana</i>	SXS2Q	
Chiricahua Fox Squirrel	<i>Sciurus nayaritensis chiricahuae</i>	S2	SC
Chisel-toothed Kangaroo Rat	<i>Dipodomys microps</i>	S3	
Chisel-toothed Kangaroo Rat	<i>Dipodomys microps celsus</i>	S2	
Cliff Chipmunk	<i>Neotamias dorsalis</i>	S5	
Cockrum's Desert Shrew	<i>Notiosorex cockrumi</i>	S1	
Collared Peccary Javelina	<i>Pecari tajacu</i>	S5	
Colorado Chipmunk	<i>Neotamias quadrivittatus</i>	S4	
Colorado River Cotton Rat	<i>Sigmodon arizonae plenus</i>	S2S3	
Common Gray Fox	<i>Urocyon cinereoargenteus</i>	S5	
Common Muskrat	<i>Ondatra zibethicus</i>	S4	
Coyote	<i>Canis latrans</i>	S5	
Crawford's Desert Shrew	<i>Notiosorex crawfordi</i>	S4S5	
Deer Mouse	<i>Peromyscus maniculatus</i>	S5	
Desert Bighorn Sheep	<i>Ovis canadensis nelsoni</i>	S3	
Desert Cottontail	<i>Sylvilagus audubonii</i>	S5	
Desert Kangaroo Rat	<i>Dipodomys deserti</i>	S5	

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Desert Woodrat (Packrat)	<i>Neotoma lepida</i>	S5	
Dusky Shrew	<i>Sorex monticolus</i>	S4	
Dwarf Shrew	<i>Sorex nanus</i>	S1	
Eastern Cottontail	<i>Sylvilagus floridanus</i>	S5	
Ermine or Short-tailed Weasel	<i>Mustela erminea</i>	S1	
European Ferret	<i>Mustela putorius</i>	SER	
Feral Ass (Donkey)	<i>Equus asinus</i>	SE5	
Feral Horse	<i>Equus caballus</i>	SE4	
Feral Pig or Wild Boar	<i>Sus scrofa</i>	SE2	
Fringed Myotis	<i>Myotis thysanodes</i>	S3S4	SC
Fulvous Harvest Mouse	<i>Reithrodontomys fulvescens</i>	S4	
Ghost-faced Bat	<i>Mormoops megalophylla</i>	SA	
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>	S5	
Gray Wolf	<i>Canis lupus</i>	SXS1	PD
Gray-collared Chipmunk	<i>Neotamias cinereicollis</i>	S4	
Great Basin Pocket Mouse	<i>Perognathus parvus</i>	S4	
Greater Western Bonneted Bat	<i>Eumops perotis californicus</i>	S3	SC
Grizzly Bear	<i>Ursus arctos horribilis</i>	SX	LT
Grizzly or Brown Bear	<i>Ursus arctos</i>	SX	
Gunnison's Prairie Dog	<i>Cynomys gunnisoni</i>	S4	PS
Harquahala S. Pocket Gopher	<i>Thomomys bottae subsimilis</i>	SH	SC

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Harris' Antelope Squirrel	<i>Ammospermophilus harrisi</i>	S5	
Hispid Cotton Rat	<i>Sigmodon hispidus</i>	S5	
Hispid Pocket Mouse	<i>Chaetodipus hispidus</i>	S5	
Hoary Bat	<i>Lasiurus cinereus</i>	S4	No
Hog-nosed Skunk	<i>Conepatus leuconotus leuconotus</i>	S3	
Hooded Skunk	<i>Mephitis macroura</i>	S4	
Hopi Chipmunk	<i>Neotamias rufus</i>	S1	
House Mouse	<i>Mus musculus</i>	SE5	
Houserock Valley Kangaroo Rat	<i>Dipodomys microps leucotis</i>	S2	SC
Hualapai Mexican Vole	<i>Microtus mexicanus hualpaiensis</i>	S1	LE
Jaguar	<i>Panthera onca</i>	S1	LE
Jaguarundi	<i>Herpailurus yaguarondi</i>	SRF	
Jaguarundi	<i>Herpailurus yaguarondi tolteca</i>	SRF	LE
Kaibab Squirrel	<i>Sciurus aberti kaibabensis</i>	S2S3	
Kit Fox	<i>Vulpes macrotis</i>	S3S4	No
Least Chipmunk	<i>Neotamias minimus</i>	S4	
Lesser Long-nosed Bat	<i>Leptonycteris curasoae yerbabuena</i>	S2S3	LE
Little Pocket Mouse	<i>Perognathus longimembris</i>	S5	No
Long-eared Myotis	<i>Myotis evotis</i>	S3	SC
Long-legged Myotis	<i>Myotis volans</i>	S3S4	SC
Long-tailed Pocket Mouse	<i>Chaetodipus formosus</i>	S5	

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Long-tailed Vole	<i>Microtus longicaudus</i>	S4	
Long-tailed Weasel	<i>Mustela frenata</i>	S4	
Meadow Jumping Mouse	<i>Zapus hudsonius</i>	S2	No
Meadow Vole	<i>Microtus pennsylvanicus</i>	SP	No
Mearns' Grasshopper Mouse	<i>Onychomys arenicola</i>	SP	
Mearns' Southern Pocket Gopher	<i>Thomomys bottae mearnsi</i>	S5	SC
Merriam's Deer mouse	<i>Peromyscus merriami</i>	S2	
Merriam's Elk	<i>Cervus elaphus merriami</i>	SX	
Merriam's Kangaroo Rat	<i>Dipodomys merriami</i>	S5	No
Merriam's Shrew	<i>Sorex merriami</i>	S3	
Mexican Fox Squirrel	<i>Sciurus nayaritensis</i>	S2	
Mexican Gray Wolf	<i>Canis lupus baileyi</i>	SXS1	PEXN
Mexican Long-nosed Bat	<i>Leptonycteris nivalis</i>	SP	
Mexican Long-tongued Bat	<i>Choeronycteris mexicana</i>	S3	SC
Mexican Opossum	<i>Didelphis virginiana californica</i>	S3	
Mexican Woodrat	<i>Neotoma mexicana mexicana</i>	S5	
Mexican Woodrat (Packrat)	<i>Neotoma mexicana</i>	S5	
Mogollon Vole	<i>Microtus mogollonensis</i>	S5	
Montane Vole	<i>Microtus montanus</i>	S4	
Mountain Cottontail	<i>Sylvilagus nuttallii</i>	S3	
Mountain Lion or Puma	<i>Puma concolor</i>	S4	

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Mountain or Bighorn Sheep	<i>Ovis canadensis</i>	S3S4	No
Mt Graham Red Squirrel	<i>Tamiasciurus hudsonicus grahamensis</i>	S1	LE
Mule or Black-tailed Deer	<i>Odocoileus hemionus</i>	S5	No
Navajo Mexican Vole	<i>Microtus mexicanus navaho</i>	S1	SC
New Mexico Banner-tail Kangaroo Rat	<i>Dipodomys spectabilis baileyi</i>	S3	
New Mex. Meadow Jumping Mouse	<i>Zapus hudsonius luteus</i>	S1	PE
North American Porcupine	<i>Erethizon dorsatum</i>	S4S5	
North Kaibab Mountain Cottontail	<i>Sylvilagus nuttallii grangeri</i>	S1?	
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>	SP	No
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>	S5	
Northern Pocket Gopher	<i>Thomomys talpoides</i>	S4	
Northern Pygmy Mouse	<i>Baiomys taylori</i>	S3	
Northern Raccoon	<i>Procyon lotor</i>	S4	
Northern River Otter	<i>Lontra canadensis</i>	S1	
Northern Rock Mouse	<i>Peromyscus nasutus</i>	S3	
Norway or Brown Rat	<i>Rattus norvegicus</i>	SE1	
Nutria or Coypu	<i>Myocastor coypus</i>	SER	
Ocelot	<i>Leopardus pardalis</i>	S1	LE
Ord's Kangaroo Rat	<i>Dipodomys ordii</i>	S5	
Osgood's Mouse	<i>Peromyscus gratus</i>	SP	
Pale Townsend's Big-eared Bat	<i>Corynorhinus townsendii pallescens</i>	S3S4	SC

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Pallid Bat	<i>Antrozous pallidus</i>	S4	
Pinon Mouse	<i>Peromyscus truei</i>	S5	
Plains Harvest Mouse	<i>Reithrodontomys montanus</i>	S3	
Plains Pocket Mouse	<i>Perognathus flavescens</i>	S4	
Pocket Gopher	<i>Thomomys bottae desertorum</i>	S5	
Pocketed Free-tailed Bat	<i>Nyctinomops femorosaccus</i>	S3	
Pronghorn (Antelope)	<i>Antilocapra americana</i>	S5	
Prospect Valley Antelope Squirrel	<i>Ammospermophilus leucurus tersus</i>	SHQ	
Pygmy Rabbit	<i>Brachylagus idahoensis</i>	SP	No
Red Fox	<i>Vulpes vulpes</i>	S3	
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	S5	PS
Ringtail	<i>Bassariscus astutus</i>	S5	
Rock Pocket Mouse	<i>Chaetodipus intermedius</i>	S5	
Rock Pocket Mouse	<i>Chaetodipus intermedius intermedius</i>	S5	
Rock Squirrel	<i>Spermophilus variegatus</i>	S5	
Rocky Mountain Bighorn Sheep	<i>Ovis canadensis canadensis</i>	S3	
Round-tailed Ground Squirrel	<i>Spermophilus tereticaudus</i>	S5	No
See: <i>Peromyscus eremicus</i>	<i>Peromyscus eremicus eremicus</i>	S5	
Silky Pocket Mouse	<i>Perognathus flavus</i>	S5	
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	S3S4	
Sonoran Desert Pocket Mouse	<i>Chaetodipus penicillatus</i>	S5	

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Sonoran Pronghorn (Antelope)	<i>Antilocapra americana sonoriensis</i>	S1	LE
Southeastern River Otter	<i>Lontra canadensis lataxina</i>	SE1	
Southern Grasshopper Mouse	<i>Onychomys torridus</i>	S5	
Southern Long-nosed Bat	<i>Leptonycteris curasoae</i>	S2	PS
Southern Plains Woodrat (Packrat)	<i>Neotoma micropus</i>	SP	
Southern Pocket Gopher	<i>Thomomys umbrinus</i>	S4	
Southern Pocket Gopher	<i>Thomomys umbrinus intermedius</i>	S3	
Southern Red-backed Vole	<i>Myodes gapperi</i>	S3	
Southwestern Cottontail	<i>Sylvilagus nuttallii pinetis</i>	S3	
Southwestern Myotis	<i>Myotis auriculus</i>	S3	
Southwestern River Otter	<i>Lontra canadensis sonora</i>	SH	SC
Spiny Pocket Mouse	<i>Chaetodipus spinatus</i>	SR	
Spotted Bat	<i>Euderma maculatum</i>	S2S3	SC
Spotted Ground Squirrel	<i>Spermophilus spilosoma</i>	S4	
Springerville Pocket Mouse	<i>Perognathus flavus goodpasteri</i>	S2	SC
Stephen's Woodrat (Packrat)	<i>Neotoma stephensi</i>	S5	
Striped Skunk	<i>Mephitis mephitis</i>	S5	
Tawny-bellied Cotton Rat	<i>Sigmodon fulviventor</i>	S4	
Thirteen-lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>	S3	
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	S3S4	No
Uinta Chipmunk	<i>Neotamias umbrinus</i>	S4	

ARIZONA MAMMALS			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Underwood's Bonneted Bat	<i>Eumops underwoodi</i>	S1	SC
Velvety Fruit-eating Bat	<i>Enchisthenes hartii</i>	SA	
Virginia Opossum	<i>Didelphis virginiana</i>	S3	
Virginia Opossum	<i>Didelphis virginiana virginiana</i>	SE	
Western Bonneted Bat	<i>Eumops perotis</i>	S3	
Western Harvest Mouse	<i>Reithrodontomys megalotis</i>	S5	
Western Jumping Mouse	<i>Zapus princeps</i>	SRF	
Western Red Bat	<i>Lasiurus blossevillii</i>	S3	
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	S3S4	SC
Western Spotted Skunk	<i>Spilogale gracilis</i>	S5	
Western White-throated Woodrat	<i>Neotoma albigula</i>	S5	
Western Yellow Bat	<i>Lasiurus xanthinus</i>	S2S3	
White Mountains Ground Squirrel	<i>Spermophilus tridecemlineatus monticola</i>	S1S2	
White-ankled Mouse	<i>Peromyscus pectoralis</i>	SRF	
White-backed Hog-nosed Skunk	<i>Conepatus leuconotus</i>	S3	
White-bellied Long-tailed Vole	<i>Microtus longicaudus leucophaeus</i>	S2	
White-footed Mouse	<i>Peromyscus leucopus</i>	S5	
White-nosed Coati	<i>Nasua narica</i>	S4	
White-sided Jackrabbit	<i>Lepus callotis</i>	SP	
White-tailed Antelope Squirrel	<i>Ammospermophilus leucurus</i>	S5	
White-tailed Deer	<i>Odocoileus virginianus</i>	S5	

Snakes



Kingsnake

Just like all the species groups in this Notebook and many species not included, snakes play a critical role in the flow of energy through Earth's web of life. Normally, they help control rodent and amphibian populations while serving as food for larger carnivores. Things aren't normal anymore. Rodent, snake, and carnivore populations are declining and becoming separated by the assault from human activities ranging from

habitat destruction for roads and buildings, to direct predation by domestic cats and dogs. Thus, human activities are severing local and global connections within the web. The total effect is difficult to predict.

The Kingsnake (*Lampropeltis californiae*) in the photograph, or a sibling, has patrolled around our house from a nest under the driveway bridge for 15 years. I haven't seen a young Kingsnake for several years, and one day there will be none.

Range maps show that many of Arizona's snake species are present in central Arizona where I live, but the only ones I've seen are Garter Snakes (*Thamnophis spp.*), Gophersnakes (*Pituophis catenifer*), and California Kingsnakes (*Lampropeltis getula*) like the one in the photograph. Garter Snakes were common until about 15 years ago. They declined, and I haven't seen one for 10 years.

In 2011, the Center for Snake Conservation (CSA) began sponsoring snake counts, a citizen-science program for gathering snake information. Go to <http://www.snakecount.org/> for more information. AZGFD says 21 species are critically imperiled, and 50 are of immediate or possible long-term concern.

Snake Species Numbers

- World: 3,000
- U.S.: 300
- Arizona: 76
- AZGFD Species Imperiled: 50 (66%)
- ESA Species Listed Endangered: 0
- ESA Species Listed Threatened: 3

Arizona Snake References

Amazon Naturalist's Bookstore has field guides (at the end of the category list) and other references. Go to: <http://bit.ly/RKW2bC>.

Arizona Herpetological Association. <http://www.azreptiles.com/>
AZGFD (Arizona Game and Fish Department). <http://azgfd.gov>.

Brennan, T.C. 2008. Online field guide to reptiles and amphibians of Arizona.
<http://www.reptilesfaz.com>.

Center for Snake Conservation: <http://www.snakeconservation.org/>.

Fowlie, J.A. 1965. The Snakes of Arizona. McGraw Hill, New York. 164 p.

Herpetological Education & Research Project: <http://www.naherp.com>. Numerous photographs of Arizona amphibians and reptiles.

Partners in Amphibian and Reptile Conservation. <http://www.parcplace.org/>

Stebbins, R.C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin, Boston, MA. 279 p.

Arizona Snake Checklist

See page 10 for conservation status symbol definitions.

ARIZONA SNAKES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Arizona Black Rattlesnake	<i>Crotalus cerberus</i>	S5	
Arizona Mountain Kingsnake	<i>Lampropeltis pyromelana pyromelana</i>	S2S3	
Arizona Ridge-nosed Rattlesnake	<i>Crotalus willardi willardi</i>	S1S2	
Banded Rock Rattlesnake	<i>Crotalus lepidus klauberi</i>	S3	
Big Bend Patch-nosed Snake	<i>Salvadora hexalepis deserticola</i>	S3S4	
Black-necked Gartersnake	<i>Thamnophis cyrtopsis</i>	S5	
Black-tailed Rattlesnake	<i>Crotalus molossus</i>	S5	
Brown Vinesnake	<i>Oxybelis aeneus</i>	S1	
California Kingsnake	<i>Lampropeltis californiae</i>	S5	
Checkered Gartersnake	<i>Thamnophis marcianus</i>	S5	

ARIZONA SNAKES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Chihuahuan Black-headed Snake	<i>Tantilla wilcoxi</i>	S1	
Chihuahuan Hook-nosed Snake	<i>Gyalopion canum</i>	S3	
Coachwhip	<i>Coluber flagellum</i>	S5	
Colorado Desert Sidewinder	<i>Crotalus cerastes laterorepens</i>	S5	
Common Kingsnake	<i>Lampropeltis getula</i>	SNA	
Desert Kingsnake	<i>Lampropeltis splendida</i>	S4	
Desert Massasauga (Rattlesnake)	<i>Sistrurus catenatus edwardsii</i>	S1	
Eastern Patch-nosed Snake	<i>Salvadora grahamiae</i>	S4	
Eastern Yellowbelly Racer	<i>Coluber constrictor flaviventris</i>	S1	
Glossy Snake	<i>Arizona elegans</i>	S5	
Gophersnake	<i>Pituophis catenifer</i>	S5	
Grand Canyon Rattlesnake	<i>Crotalus oreganus abyssus</i>	S4	
Great Basin Rattlesnake	<i>Crotalus oreganus lutosus</i>	S4	
Green Ratsnake	<i>Senticolis triaspis</i>	S3	
Hooded Nightsnake	<i>Hypsiglena sp. nov.</i>	S4	
Lined Coachwhip	<i>Coluber flagellum lineatulus</i>	S2	
Long-nosed Snake	<i>Rhinocheilus lecontei</i>	S5	
Massasauga (Rattlesnake)	<i>Sistrurus catenatus</i>	S1	No
Mesa Verde Nightsnake	<i>Hypsiglena chlorophaea loreala</i>	S1	
Mexican Gartersnake	<i>Thamnophis eques</i>	S1	SC

ARIZONA SNAKES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Mexican Hog-nosed Snake	<i>Heterodon kennerlyi</i>	S3	
Milksnake	<i>Lampropeltis triangulum</i>	S2	
Mohave Desert Sidewinder	<i>Crotalus cerastes cerastes</i>	S3S4	
Mohave Rattlesnake	<i>Crotalus scutulatus</i>	S5	
Narrow-headed Gartersnake	<i>Thamnophis rufipunctatus</i>	S1	PT
New Mexico Milksnake	<i>Lampropeltis triangulum celaenops</i>	S1	
New Mexico Ridge-nosed Rattlesnake	<i>Crotalus willardi obscurus</i>	S1	LT
Northern Green Ratsnake	<i>Senticolis triaspis intermedia</i>	S3	
Northern Mexican Gartersnake	<i>Thamnophis eques megalops</i>	S1	PT
Organ Pipe Shovel-nosed Snake	<i>Chionactis palarostris organica</i>	S1	
Plains Black-headed Snake	<i>Tantilla nigriceps</i>	S2	
Prairie Rattlesnake	<i>Crotalus viridis</i>	S1	
Racer	<i>Coluber constrictor</i>	S1	
Red Racer	<i>Coluber flagellum piceus</i>	S5	
Ridge-nosed Rattlesnake	<i>Crotalus willardi</i>	S2	PS
Ring-necked Snake	<i>Diadophis punctatus</i>	S4	
Rock Rattlesnake	<i>Crotalus lepidus</i>	S3	
Rosy Boa	<i>Lichanura trivirgata</i>	S1S2	SC
Saddled Leaf-nosed Snake	<i>Phyllorhynchus browni</i>	S5	
Sidewinder (Rattlesnake)	<i>Crotalus cerastes</i>	S5	

ARIZONA SNAKES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Smith's Black-headed Snake	<i>Tantilla hobartsmithi</i>	S5	
Sonoran Coachwhip	<i>Coluber flagellum cingulum</i>	S4	
Sonoran Coralsnake	<i>Micruroides euryxanthus</i>	S5	
Sonoran Mountain Kingsnake	<i>Lampropeltis pyromelana</i>	S3	
Sonoran Shovel-nosed Snake	<i>Chionactis palarostris</i>	S1	
Sonoran Sidewinder (Rattlesnake)	<i>Crotalus cerastes cercobombus</i>	S5	
Sonoran Whipsnake	<i>Coluber bilineatus</i>	S5	
Speckled Rattlesnake	<i>Crotalus mitchellii</i>	S5	
Spotted Leaf-nosed Snake	<i>Phyllorhynchus decurtatus</i>	S5	
Striped Whipsnake	<i>Coluber taeniatus</i>	S4	
Terrestrial Gartersnake	<i>Thamnophis elegans</i>	S5	
Thornscrub Hook-nosed Snake	<i>Gyalopion quadrangulare</i>	S1	
Tiger Rattlesnake	<i>Crotalus tigris</i>	S5	
Tucson Shovel-nosed Snake	<i>Chionactis occipitalis klauberi</i>	S1	C*
Twin-spotted Rattlesnake	<i>Crotalus pricei</i>	S2	
Utah Milksnake	<i>Lampropeltis triangulum taylori</i>	S2	
Utah Mountain Kingsnake	<i>Lampropeltis pyromelana infralabialis</i>	S1	
Variable Sandsnake	<i>Chilomeniscus stramineus</i>	S4	
Wandering Gartersnake	<i>Thamnophis elegans vagrans</i>	S5	
Western Black Kingsnake	<i>Lampropeltis getula nigrita</i>	S3	

Turtles

Most of us like turtles. Baby turtles float by in my early memories of the little creek that runs through our place, and I recall many encounters with terrapins in the woods along the creek. I still see those cautious eyes peering through the slit in the closed shell door. These days, I often get a look at the Spiny Softshell, two Sonora Mud Turtles, and two Pond Sliders that live in my ponds. They are safe in the water and always sound the dive alarm when I approach.

Turtles have exceptional regenerative powers. Dr. Justin Congdon, a classmate from long ago, managed a study of turtles in the E. S. George Reserve in Michigan for more than 40 years. In the 1980s, Justin made a startling discovery: As they aged, Blanding's turtles produced more eggs and offspring. This reversal of the usual decline in reproductive success with age drew global attention from scientists and others interested in longevity and life extension.

Another interesting turtle trait is resistance to toxic materials. Arizona fish, frogs, and mollusks develop various forms of cancer in response to toxic chemicals in agricultural and urban runoff, and treated wastewater. Turtles do not.



Pond Slider

Despite their marvelous tolerance, Arizona turtles are at risk of extinction. Human habitat destruction and collection for the pet industry are the chief reasons. The Pond Slider (*Trachemys scripta*) in the photograph shares one of my ponds with two other turtles. Pond Sliders are not Arizona natives. This one probably came from the roadside vendor who sells turtles at a highway intersection upstream from my ponds. If humans do not empty my ponds with their incessant population growth and groundwater pumping, the Pond Slider might be living

here at Coldwater Farm long after I am gone.

(Turtles sometimes leave the water to explore. Just after I wrote the above, a visitor harvesting weeds for his sheep backed his truck over the Pond Slider in the photograph, killing it instantly.)

Turtle Species Numbers

The following numbers are from AZGFD and Reptile and Amphibian Ecology International.

- World: 300
- U.S.: 59
- Arizona Turtles: 15
- Arizona Natives: 10
- Arizona Turtles at Risk of Extinction (S1 to S4): 15
- ESA Arizona Turtles Listed Threatened (None Endangered): 2

Arizona Turtles References

AZGFD (Arizona Game and Fish Department).

Arizona Herpetological Association.

Brennan, T.C. 2008. Online field guide to reptiles and amphibians of Arizona.

Congdon, J.D., A.E. Dunham, and R.C. van Loben Sels. 1993. Delayed sexual maturity and demographics of Blanding’s turtles (*Emydoidea blandingii*): implications for conservation and management of long-lived organisms. *Conservation Biology* 7:826-833.

Herpetological Education & Research Project: <http://www.naherp.com>. Numerous photographs of Arizona amphibians and reptiles.

Partners in Amphibian and Reptile Conservation.

Stebbins, R.C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin, Boston, MA. 279 p.

Arizona Turtle Checklist

See page 10 for conservation status symbol definitions.

ARIZONA TURTLES			
COMMON NAME	SCIENTIFIC NAME	AZ	ESA
Arizona Mud Turtle	<i>Kinosternon arizonense</i>	S2	
Desert Box Turtle	<i>Terrapene ornata luteola</i>	S2S3	
Desert Mud Turtle	<i>Kinosternon sonoriense sonoriense</i>	S4	
Desert Tortoise	<i>Gopherus agassizii</i>	S4	LT
Mohave Desert Tortoise	<i>Gopherus agassizii</i>	S2	LT
Ornate Box Turtle	<i>Terrapene ornata</i>	S2S3	
Painted Turtle	<i>Chrysemys picta</i>	S1SE2	

Appendix A. Sightings Record for Special Species

Use for any species, but especially those marked with S1, E, or T in the checklists. Enter as much of the information as possible. Attach photographs. Send the information to Garry Rogers (PO Box 1011, Humboldt, AZ 86329 or groggers@sigmaxi.net). I will forward it to federal and state agencies. At present, the U.S. Fish and Wildlife Service (<http://www.fws.gov/endangered>) would be best, but this might change. This is a long list, but record as much as you can.

1. Species name:
2. Observer name:
3. Observer email address:
4. Observation date (m/d/y): Time:
5. Duration of observation:
6. Other observers:
7. Location (include county, distance to nearest town, road, etc.):
8. Thorough description of what you saw:
9. Plumage/skin/fur patterns and colors:
10. Sex and age:
11. Size and shape:
12. Bird bill shape, length, color:
13. Voice (song and/or calls):
14. Behavior:
15. Association with other species:
16. Other characters (eye color, length and color of legs, etc.):
17. Description of habitat:
18. References and sources consulted in identification:
19. Please attach photographs, sketches, and notes.

Review

If you liked the "Arizona Wildlife Notebook," please tell others. Write a review for Amazon: <http://mybook.to/AZWildlifeNotebook>, or Goodreads: <http://bit.ly/1Mkgmei>. Thank you.

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