

SUMMARY OF CHANGES

A. Revision of the 2005 Louisiana Wildlife Action Plan (WAP)

The Louisiana Department of Wildlife and Fisheries (LDWF) notified the United States Fish and Wildlife Service (USFWS) of our intent to comprehensively review and revise the Louisiana Wildlife Action Plan (WAP) in February of 2012. That marked the beginning of a three and a half year process that has resulted in a significant rewrite of the 2005 WAP. This section details the major changes made during the 2015 WAP revision, and, in conjunction with the Roadmap to the Eight Required Elements, will enable readers to quickly identify those areas of the WAP that have been added or updated. As required by the 2007 *Guidance for Wildlife Action Plan Review and Revisions* (USFWS 2007), all of the Required Elements have been updated as deemed necessary.

B. Species of Greatest Conservation Need (SGCN) List

As the focal point of the WAP, the list of SGCN (Element 1) was the logical starting point for the review and revision of the Louisiana WAP. This was a multi-stage process, and resulted in changes to Status Ranks of SGCN, removal of SGCN from the WAP, the addition of SGCN to the WAP, changes in common and scientific names and organization as a result of taxonomic and nomenclatural revisions, and the development and application of criteria to prioritize SGCN.

1. Revision of NatureServe Conservation Status Ranks

Each native species in Louisiana, including all SGCN, are assigned a Global Status Rank (G-rank) and Sub-national Status Rank (S-rank). For explanations of these ranks, refer to Appendix M. The initial step in revising the Louisiana WAP SGCN list was a review of the S-ranks of all 2005 SGCN, as well as those species that were considered rare (S1, S2, or S3) by LDWF's Natural Heritage Program (LNHP), but not included as SGCN in the 2005 WAP. Following this process, S-ranks were updated for 140 species in Biotics, the central repository of such data, maintained by NatureServe on behalf of member programs.

2. Removal of SGCN

A total of 25 SGCN from the 2005 Louisiana WAP were removed from the updated SGCN list (Table 1). Two of the species removed, the Silverjaw Minnow and the Pascagoula Map Turtle, are no longer considered to occur in Louisiana. The Silverjaw Minnow has been split into two species that are geographically separated, with the southeastern population now known as the Longjaw Minnow (*Notropis amplamala*; Pera and Armbruster 2006). The Longjaw Minnow is therefore a newly described species that replaces the Silverjaw Minnow as a SGCN in this plan. In the case of the Pascagoula Map Turtle, genetics and morphological evidence caused populations formerly referable to this

species to be split into two species, the Pascagoula Map Turtle and the newly described Pearl River Map Turtle (*Graptemys pearlensis*; Ennen et al. 2010), which occurs in Louisiana and has been added as a SGCN.

Table 1. 2005 SGCN Removed from 2015 WAP

| Non-crustacean Arthropods (5) | |
|--------------------------------------|---|
| Common Name | Scientific Name |
| Great Southern White | <i>Ascia monuste</i> |
| Southern Dogface | <i>Colias cesonia</i> |
| Harvester | <i>Feniseca tarquinius</i> |
| Reakirt's Blue | <i>Hemiargus isola</i> |
| Neamathla Skipper | <i>Nastra neamathla</i> |
| Inland Fishes (1) | |
| Common Name | Scientific Name |
| Silverjaw Minnow* | <i>Ericymba buccata</i> |
| Marine Fishes (1) | |
| Common Name | Scientific Name |
| Longfin Mako | <i>Isurus paucus</i> |
| Amphibians and Reptiles (6) | |
| Common Name | Scientific Name |
| Oak Toad | <i>Anaxyrus quercicus</i> |
| Barking Treefrog | <i>Hyla gratiosa</i> |
| Northern Scarlet Snake | <i>Cemophora coccinea copei</i> |
| Pascagoula Map Turtle* | <i>Graptemys gibbonsi</i> |
| Scarlet Kingsnake | <i>Lampropeltis triangulum elapsoides</i> |
| Eastern Slender Glass Lizard | <i>Ophisaurus attenuatus longicaudus</i> |
| Birds (7) | |
| Common Name | Scientific Name |
| Ivory-billed Woodpecker | <i>Campephilus principalis</i> |
| Northern Harrier | <i>Circus cyaneus</i> |
| Yellow-billed Cuckoo | <i>Coccyzus americanus</i> |
| Orchard Oriole | <i>Icterus spurius</i> |
| Yellow-crowned Night-Heron | <i>Nyctanassa violacea</i> |
| Northern Parula | <i>Parula americana</i> |
| Scissor-tailed Flycatcher | <i>Tyrannus forficatus</i> |
| Mammals (5) | |
| Common Name | Scientific Name |
| Sei Whale | <i>Balaenoptera borealis</i> |
| Blue Whale | <i>Balaenoptera musculus</i> |
| Finback Whale | <i>Balaenoptera physalus</i> |
| Red Wolf | <i>Canis rufus</i> |
| Florida Panther | <i>Puma concolor coryi</i> |

* Species no longer considered to occur in Louisiana due to changes in taxonomy. Other species in this table may be considered extirpated or extinct (see Chapter 4).

Three additional species, the Ivory Billed Woodpecker, Red Wolf, and Florida Panther were removed from the list because they are either extirpated from Louisiana, or functionally extinct. Three whales were removed as they very rarely occur in State Waters.

3. Addition of SGCN

A total of 130 SGCN were added to the 2005 SGCN list. A complete list of those SGCN can be found in Table 2. Two of these species, the Pearl River Map Turtle and Longjaw Minnow are newly described species that replace the species they were formerly referable to, as discussed above.

Table 2. SGCN added to 2015 WAP

| Mollusks (10) | |
|---------------------------------------|--------------------------------------|
| <u>Common Name</u> | <u>Scientific Name</u> |
| Flamed Tigersnail | <i>Anguispira alternata</i> |
| Bay Scallop | <i>Argopecten irradians</i> |
| Half-Naked Penshell | <i>Atrina seminuda</i> |
| Sawtooth Penshell | <i>Atrina serrata</i> |
| Lightning Whelk | <i>Busycon sinistrum</i> |
| Channeled Whelk | <i>Busycotypus canaliculatus</i> |
| Texas Pigtoe | <i>Fusconaia askewi</i> |
| Round Pearlshell | <i>Glebula rotundata</i> |
| Silty Hornsnail | <i>Pleurocera canaliculata</i> |
| Fawnsfoot | <i>Truncilla donaciformis</i> |
| Crustaceans (10) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| Beach Ghost Shrimp | <i>Callichirus islagrande</i> |
| Carolinian Ghost Shrimp | <i>Callichirus major</i> |
| Estuarine Ghost Shrimp | <i>Lepidophthalmus louisianensis</i> |
| Peppermint Shrimp | <i>Lysmata wurdemanni</i> |
| Pontchartrain Painted Crawfish | <i>Orconectes hobbsi</i> |
| Flatnose Crawfish | <i>Procambarus planirostris</i> |
| Southwestern Creek Crawfish | <i>Procambarus dupratzi</i> |
| Caddo Chimney Crawfish | <i>Procambarus machardy</i> |
| Pearl Blackwater Crawfish | <i>Procambarus penni</i> |
| Calcasieu Creek Crawfish | <i>Procambarus pentastylus</i> |
| Non-crustacean Arthropods (41) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| Spring-loving Psiloneuran Caddisfly | <i>Agarodes libalis</i> |
| Lace-winged Roadside Skipper | <i>Amblyscirtes aesculapius</i> |
| Texas Forestfly | <i>Amphinemura texana</i> |
| Texas Brown Tarantula | <i>Aphonopelma hentzi</i> |
| Saline Prairie Scarab Beetle | <i>Ataenius robustus</i> |
| Louisiana Eyed Silkmoth | <i>Automeris louisiana</i> |

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| Brou's Mallow Moth | <i>Bagisara brouana</i> |
| American Bumble Bee | <i>Bombus pensylvanicus</i> |
| Yellow Brachycercus Mayfly | <i>Brachycercus flavus</i> |
| Frosted Elfin | <i>Callophrys irus</i> |
| Nutmeg Underwing | <i>Catocala atocala</i> |
| Ceraclea Caddisfly | <i>Ceraclea spongillovorax</i> |
| Morse's Net-spinning Caddisfly | <i>Cheumatopsyche morsei</i> |
| Holzenthal's Philopotamid Caddisfly | <i>Chimarra holzenthali</i> |
| Sandbar Tiger Beetle | <i>Cicindela blanda</i> |
| Eastern Beach Tiger Beetle | <i>Cicindela dorsalis venusta</i> |
| Cajun Tiger Beetle | <i>Cicindela pilatei</i> |
| White Sand Tiger Beetle | <i>Cicindela waplery</i> |
| Pitcher Plant Spiketail | <i>Cordulegaster sarracenia</i> |
| Monarch | <i>Danaus plexippus</i> |
| Schoolhouse Springs Net-spinning Caddisfly | <i>Diplectrona rossi</i> |
| Six-banded Longhorn Beetle | <i>Dryobius sexnotatus</i> |
| Little Dubiraphian Riffle Beetle | <i>Dubiraphia parva</i> |
| Mottled Duskywing | <i>Erynnis martialis</i> |
| Bay Skipper | <i>Euphyes bayensis</i> |
| Hodges' Clubtail | <i>Gomphus hodgesi</i> |
| Masked Springfly | <i>Helopicus bogaloosa</i> |
| Meske's Skipper | <i>Hesperia meskei</i> |
| Molson's Microcaddisfly | <i>Hydroptila molsonae</i> |
| Schoolhouse Springs Purse Casemaker | <i>Hydroptila ouachita</i> |
| Hydroptilad Caddisfly | <i>Hydroptila poirrieri</i> |
| Gulf Pine Sphinx | <i>Lapara phaeobrachycerous</i> |
| Louisiana Needlefly | <i>Leuctra szczytkoi</i> |
| Strecker's Giant Skipper | <i>Megathymus streckeri</i> |
| Georgia Satyr | <i>Neonympha areolatus</i> |
| Southern Snaketail | <i>Ophiogomphus australis</i> |
| Florida Harvester Ant | <i>Pogonomyrmex badius</i> |
| Comanche Harvester Ant | <i>Pogonomyrmex comanche</i> |
| King's Hairstreak | <i>Satyrium kingi</i> |
| Texas Emerald | <i>Somatochlora margarita</i> |
| Southern Unstriped Scorpion | <i>Vaejovis carolinianus</i> |
| Inland Fishes (12) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| American Eel | <i>Anguilla rostrata</i> |
| Redspot Darter | <i>Etheostoma artesia</i> |
| Gumbo Darter | <i>Etheostoma thompsoni</i> |
| Clear Chub | <i>Hybopsis winchelli</i> |
| Sturgeon Chub | <i>Macrhybopsis gelida</i> |
| Shoal Chub | <i>Macrhybopsis hyostoma</i> |
| Sicklefin Chub | <i>Macrhybopsis meeki</i> |
| Longjaw Minnow* | <i>Notropis amplamala</i> |
| Ironcolor Shiner | <i>Notropis chalybaeus</i> |

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| Stargazing Darter | <i>Percina uranidea</i> |
| Saddleback Darter | <i>Percina vigil</i> |
| Shovelnose Sturgeon | <i>Scaphirhynchus platyrhynchus</i> |
| Marine Fishes (6) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| Frillfin Goby | <i>Bathygobius soporator</i> |
| Dwarf Seahorse | <i>Hippocampus zosterae</i> |
| Tarpon | <i>Megalops atlanticus</i> |
| Lemon Shark | <i>Negaprion brevirostris</i> |
| Smalltooth Sawfish | <i>Pristis pectinata</i> |
| Southern Puffer | <i>Sphoeroides nephelus</i> |
| Reptiles and Amphibians (11) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| Smooth Softshell | <i>Apalone mutica</i> |
| Western Chicken Turtle | <i>Deirochelys reticularia miaria</i> |
| Pearl River Map Turtle* | <i>Graptemys pearlensis</i> |
| Eastern Hog-Nosed Snake | <i>Heterodon platirhinos</i> |
| Gulf Coast Waterdog | <i>Necturus beyeri</i> |
| Red River Mudpuppy | <i>Necturus louisianensis</i> |
| Gulf Saltmarsh Snake | <i>Nerodia clarkii clarkii</i> |
| Texas Horned Lizard | <i>Phrynosoma cornutum</i> |
| Coal Skink | <i>Plestiodon anthracinus</i> |
| Hurter's Spadefoot | <i>Scaphiopus hurterii</i> |
| Pygmy Rattlesnake | <i>Sistrurus miliarius</i> |
| Razor-backed Musk Turtle | <i>Sternotherus carinatus</i> |
| Birds (27) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| Upland Sandpiper | <i>Bartramia longicauda</i> |
| Red Knot | <i>Calidris canutus</i> |
| Buff-breasted Sandpiper | <i>Calidris subruficollis</i> |
| Crested Caracara | <i>Caracara cheriway</i> |
| Chimney Swift | <i>Chaetura pelagica</i> |
| Lark Sparrow | <i>Chondestes grammacus</i> |
| Marsh Wren | <i>Cistothorus palustris</i> |
| Common Ground-Dove | <i>Columbina passerina</i> |
| Little Blue Heron | <i>Egretta caerulea</i> |
| White-tailed Kite | <i>Elanus leucurus</i> |
| Peregrine Falcon | <i>Falco peregrinus</i> |
| Southeastern American Kestrel | <i>Falco sparverius paulus</i> |
| Greater Roadrunner | <i>Geococcyx californianus</i> |
| Least Bittern | <i>Ixobrychus exilis</i> |
| Hudsonian Godwit | <i>Limosa haemastica</i> |
| Red-headed Woodpecker | <i>Melanerpes erythrocephalus</i> |
| Long-billed Curlew | <i>Numenius americanus</i> |

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| Sooty Tern | <i>Onychoprion fuscatus</i> |
| Osprey | <i>Pandion haliaetus</i> |
| Roseate Spoonbill | <i>Platalea ajaja</i> |
| Glossy Ibis | <i>Plegadis falcinellus</i> |
| Cerulean Warbler | <i>Setophaga cerulea</i> |
| Yellow-throated Warbler | <i>Setophaga dominica</i> |
| American Redstart | <i>Setophaga ruticilla</i> |
| White-breasted Nuthatch | <i>Sitta carolinensis</i> |
| Coastal Least Tern | <i>Sternula antillarum</i> |
| Eastern Meadowlark | <i>Sturnella magna</i> |
| Golden-winged Warbler | <i>Vermivora chrysoptera</i> |
| Warbling Vireo | <i>Vireo gilvus</i> |
| Mammals (10) | |
| <u>Common Name</u> | <u>Scientific Name</u> |
| Northern Pygmy Mouse | <i>Baiomys taylori</i> |
| Rafinesque's Big-eared Bat | <i>Corynorhinus rafinesquii</i> |
| Oak Ridge Pocket Gopher | <i>Geomys breviceps breviceps</i> |
| Baird's Pocket Gopher | <i>Geomys breviceps sagittalis</i> |
| Prairie Vole | <i>Microtus ochrogaster</i> |
| Golden Mouse | <i>Ochrotomys nuttalli</i> |
| Eastern Pipistrelle | <i>Perimyotis subflavus</i> |
| Bachman's Fox Squirrel | <i>Sciurus niger bachmanii</i> |
| Eastern Chipmunk | <i>Tamias striatus</i> |
| Bottlenose Dolphin | <i>Tursiops truncatus</i> |

* See discussion of these two SGCN above, under "Species Removed."

4. Taxonomic Updates/Common Name Changes

Seven SGCN have had changes in the common name since 2005, including the Northern Long-eared Bat (formerly Northern Myotis), Nelson's Sparrow (formerly Nelson's Sharp-tailed Sparrow), Creeper (formerly Squawfoot), Pine Hills Digger (formerly Pine Hills Crawfish), Old Prairie Digger (formerly Old Prairie Crawfish), Gulf Crawfish (formerly Plain Brown Crawfish) and Elegant Creek Crawfish (formerly Elegant Crawfish).

Taxonomic updates were made for 17 SGCN to reflect changes in taxonomy since 2005. These changes affected non-crustacean arthropod, marine fish, amphibian, reptile, and bird SGCN. Taxonomy for all species follows the authorities suggested in *Best Practices for State Wildlife Action Plans* (AFWA 2012).

5. Prioritization of SGCN

In the 2005 Louisiana WAP, no attempt was made to prioritize SGCN, beyond the priority that could be inferred from G-ranks and S-ranks. During the 2015 revision, a set of prioritization criteria were developed and used to prioritize SGCN for conservation

action and funding. SGCN were placed into three tiers within each taxonomic group, with Tier 1 species being those that are considered the highest priority. More information on this framework, including the criteria, may be found in Chapter 3.

C. Revision of Threats to SGCN

The identification of threats to SGCN and their habitats (Element 3) is a key component of WAPs. For the 2015 revision, LDWF refined our approach to addressing this aspect of the WAP, as discussed below.

1. Adoption of Standard Lexicon

As recommended in the *Best Practices for State Wildlife Action Plans* (AFWA 2012) the standard lexicon of threats provided by Salafsky et al. (2008) was adopted for the 2015 Louisiana WAP revision. For more information on the process used to assess threats to habitats and SGCN, refer to Chapter 3. For the results of threats assessments and discussion of threats, refer to Chapter 4 (SGCN) and Chapter 5 (Habitats).

2. Addition of Invasive Species and Climate Change Chapters

Two of the 1st level threats identified by Salafsky et al. (2008) were given further treatment in chapters devoted to those threats. Invasive Species are comprehensively addressed in Chapter 6, and Climate Change is addressed in Chapter 7. Although invasives were treated in the 2005 WAP, a more complete treatment was desirable due to the pervasive nature of this threat. Climate Change was not addressed in the 2005 WAP, but has emerged into the forefront of conservation planning since that time and was recommended for inclusion in WAPs by AFWA (2012) in *Best Practices for State Wildlife Action Plans*.

D. Revision of Research Needs and Conservation Actions

Elements 3 and 4 of the Eight Required Elements include the description of research and survey needs necessary for the restoration and improved conservation of SGCN, as well as descriptions of conservation actions necessary to conserve SGCN. In the 2005 Louisiana WAP, this information was largely contained nested within the “Conservation Habitats” chapter. For the 2015 WAP revision, a new Chapter (Chapter 4: SGCN) was created, and this information was moved to that location to make the WAP more user-friendly and to reduce repetition. Taxonomic committees within LDWF met and revised and updated both the research and survey needs and conservation actions listed for SGCN. Many new needs and actions were identified and incorporated into the revised WAP. For more information on the processes used refer to Chapter 3, and for the updated needs and actions refer to Chapter 4.

E. SGCN Habitats

Element 2 of the Eight Required Elements concerns the description of key habitats needed for the effective conservation of SGCN. For the 2015 revision, LDWF entirely revised this section of the Louisiana WAP. This updated information may be found in Chapter 5.

1. Reorganization of Habitats

In the 2005 Louisiana WAP, the habitats were arranged alphabetically. For the 2015 revision, this information was reorganized into broad sub-categories, within which the habitats are then arranged in alphabetical order. These categories are:

- Forests
- Savannas and Woodlands
- Shrublands
- Grasslands
- Ephemeral Ponds
- Lentic Water Bodies
- Submersed Aquatic Vegetation (SAV)
- Subterranean
- Geologic Feature
- Anthropogenic Habitats
- River Basins
- Marine Habitats

Habitat treatments were also updated and restructured to provide the following information for each habitat/community:

- Rarity Ranks
- Synonyms
- Ecological Systems associated with the habitat
- General Description
- Characteristic Plant Species
- Current Extent and Status (with parish-level range map)
- Associated SGCN and Rare Plants
- Threats Assessment
- Research Needs/Conservation Actions

2. Additions to List of Habitats

Thirteen habitats/communities that were not included in the 2005 WAP are treated in the 2015 revision. These habitats include:

- Pondcypress-Blackgum Swamp
- Canebrake
- Freshwater Floating Marsh
- Louisiana Beach
- Mississippi Terrace Prairie
- West Gulf Coastal Plain Muck Bog
- Ephemeral Ponds (5 types)
- Lakes and Reservoirs
- Ponds
- Submersed Aquatic Vegetation (SAV; 5 types)
- Caves
- Rice Agriculture and Aquaculture
- Pine Plantation

For each of these new habitats, a complete habitat treatment is provided, as described above.

3. Changes in Habitat Prioritization

Unlike SGCN, habitats were prioritized in the 2005 Louisiana WAP. For the 2015 revision, we developed a new methodology for prioritizing habitats (see Chapter 3 for details), which included the development and application of ranking criteria, similar to that developed for SGCN, including the creation of three tiers.

4. Characteristic and Rare Plants Associated with Habitats

As mentioned above, a list of Characteristic Plants is provided for each habitat/community, where applicable. This information was included to aid in identification of those habitats in the field by non-specialists, as well as to provide a more complete description of each habitat. Additionally, a list of Rare Plants was included for each habitat/community and added to the end of the SGCN table for each habitat.

F. Conservation Opportunity Areas

A new section was added to the 2015 WAP which provides information on the location of priority geographies for the conservation of SGCN. As recommended in the *Best Practices for State Wildlife Action Plans* (AFWA 2012), these geographies are referred to

as Conservation Opportunity Areas (COAs). For more detail on COAs, please refer to Chapter 8.

G. Research and Monitoring

Element 5 of the Eight Required Elements concerns monitoring, and requires monitoring at three levels:

1. Monitoring of SGCN and habitats
2. Monitoring the effectiveness of conservation actions and the WAP
3. Adaptive management of the WAP

All three levels of monitoring were addressed in the 2005 Louisiana WAP and have been revised for the 2015 WAP. Additional detail has been added to help improve consistency when monitoring SGCN and associated habitats to address the 1st level of monitoring. For the 2nd level of monitoring, the 2005 Louisiana WAP provided five tables of performance indicators. In the 2015 revision of the WAP, we have replaced these tables with the First and Second Level Conservation Actions and Outputs that are incorporated into Wildlife TRACS. This provides several advantages, which are discussed in Chapter 9. Tracking the effectiveness of SWG projects using the Wildlife TRACS system will also improve the adaptive management of the Louisiana WAP. For more information on LDWF's approach to Adaptive Management, refer to Chapter 9.

H. Required Elements 6, 7, and 8

Updated information on the procedure and plan for the next (2025) revision of the Louisiana WAP may be found in Chapter 3. Also, in Chapter 3 is updated information on the processes used by LDWF to coordinate with federal, state, and local agencies, as well as with Indian Tribes. This chapter also includes updated information on the public participation and review that was incorporated into the 2015 WAP.

I. General Updates to the 2005 WAP

The introductory chapters of the 2005 WAP (Introduction; State Overview) have been revised by LDWF as needed, including updating of statistics. All Appendices from the 2005 WAP were revised or replaced as deemed appropriate.