

Analysis of All Recovery Plans Identified by GAO as including Recovery Costs and Recovery Time Estimates



Report to the House Committee on Resources
Richard W. Pombo, Chairman
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**This report has not been officially adopted by the House Committee on Resources.*

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Executive Summary

The Government Accountability (GAO) recently completed a review of a statistically significant sample of endangered species recovery plans (107) covering about 200 species.^{1,2} GAO's review accessed the plans to determine if they contained certain elements including an estimated cost of recovery or an estimated date by which recovery would be achieved. GAO found that only 20 plans contained an estimated recovery cost and only 34 included an estimated recovery date. This report analyzes the plans that contained one or both of these required elements, comparing the condition of the species with the recovery plan's recovery dates and the recovery cost estimates with known expenditures. The results are presented in Table 1 and 2. Additionally, provisions of H.R. 3824, The Threatened and Endangered Species Recovery Act that passed the U.S. House of Representatives on September 27, 2005, that are relevant to shortcomings in the endangered species program revealed by GAO's analysis and this report are identified.

Data in this report comes from the available US Fish and Wildlife Service (USFWS) reports on Species by Species Expenditures Reports for 1989 - 2004, the USFWS' 2004 Report to Congress on the recovery program, the USFWS' TESS website (and related Natureserve links) and from the recovery costs and recovery dates identified by GAO.

Findings

- Of the species covered by 13 plans that contained a possible recovery date that had passed by time the GAO published its report, none has been removed or is now proposed for removal from the Endangered Species List
- Of the species covered by 13 plans that contained a possible recovery date that had passed by time the GAO published its report, only one species has been changed in status or proposed for a change in status.

The Maguire daisy, a flowering plant found in Utah, was changed from endangered to threatened status. In the Federal Register notice downlisting the Maguire daisy, the USFWS reveals that the reason for the status change is that the USFWS determined the number of Maguire daisies is greater than was originally believed.³ Prior to the change, some Maguire daisies were believed to be a separate variant. However, later genetic studies showed that variation resulted from the different habitats where the species occurred, but not from genetic differences between the "variants".

¹ Representatives Pombo and Rahall and Senators Clinton, Crapo, Inhofe, Jeffords, Lautenberg, Murkowski, Reid and Thomas are requesting parties for GAO's product.

² References to "endangered species" are meant to trap threatened species as well with except as regards a change in a species listing, i.e. changed from endangered to threatened or vice versa.

³ Reclassification of *Erigeron maguirei* (Maguire daisy) From Endangered to Threatened; United States Fish and Wildlife Service; 61 FR 31054 31058; June 19, 1996.

- Of the plans that contained a possible recovery date that had passed by time the GAO published its report, eight included an estimated cost of recovery.

These included plans for the Least tern (interior population), Decurrent false aster, Neosho madtom, Wyoming toad, Ruth's golden aster, Cumberland sandwort, Concho water snake and Sacramento Mountains thistle. Of these eight plans,

- expenditures reported for the period beginning after the year of the plan exceeded the plan's estimated recovery cost in 4 cases.
- in 4 cases the reported expenditures for the conservation of the species were below the plans' projected recovery cost.

Species	Plan's Estimated Cost	Reported Expenditures	Reported Expenditures as a % of Plan's Estimated Cost
Least tern (Interior population)	\$2,000,000	\$23,041,000	1152%
Decurrent false aster	\$58,100	\$631,000	1086%
Neosho madtom	\$412,000	\$1,448,000	351%
Wyoming toad	\$1,600,000	\$2,335,000	146%
Ruth's golden aster	\$162,500	\$153,000	94%
Cumberland Sandwort	\$268,000	\$80,000	30%
Concho water snake	\$2,729,000	\$585,000	21%
Sacramento Mountains thistle	\$1,195,000	\$239,000	20%

- For the 13 species with plans that contained a possible recovery date that had passed by time the GAO published its report, the most recent Service report on the recovery program indicated that:
 - 8 had achieved 0-25% of the recovery objectives;
 - 3 had achieved 26-50% of the recovery objectives;
 - 2 had achieved 51-75% of the recovery objectives; and
 - none had achieved 75% of the recovery objectives.

The two species which had achieved the highest level of recovery objectives were the Maguire daisy, the population of which was determined to be greater due to taxonomic revisions, and the decurrent false aster for which expenditures have exceeded the plan's estimated recovery cost by more than 10 times.⁴

- For the 13 species with plans that contained a possible recovery date that had passed by time the GAO published its report, the most recent USFWS report on the recovery

⁴ USFWS recently announced that the decurrent false aster would be among a group of species included within a 5 year review. 5-Year Review of Five Midwestern Species, USFWS, Federal Register, Vol. 71, No. 6, pgs 16176-16177, March 30, 2006.

program indicated that the status of:

- 2 are “unknown”,
- 3 are “declining”,
- 7 are “stable” ; and
- 1 is “improving”.

Of this group, the only one of these species assessed as being “improving” is the Cumberland sandwort.⁵

- Of the 38 species covered by plans⁶ that had an estimated recovery date, the most recent USFWS report on the recovery program indicated the recovery objective achieved interval for these species:

- 24 are in 0-25%
- 8 are in 26-50%
- 4 are in 51-75%
- none are ranked as having achieved more than 75% of recovery objectives.

- Of the 38 species covered by plans that had an estimated recovery date:

- 6 are “unknown”
- 9 are “declining”
- 18 are “stable”
- 4 are “improving.”

The “improving” species include the Cumberland sandwort, Colorado pikeminnow, Wenatchee Mountains checker-mallow, and the Virginia sneezeweed.⁷

⁵ According to Natureserve, the Cumberland sandwort is “[n]arrowly endemic to the Cumberland Plateau of north central Tennessee and adjacent Kentucky, where it is restricted to unusual cave-like sandstone overhangs.” Natureserve also reports that after the species was listed, “[t]here were discoveries of larger populations (emphasis added) but the species is still confined to a small range and threatened by recreational activities and timber harvest.”

<http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Arenaria+cumberlandensis>

⁶ Two plans (“Three Puerto Rican Plants” and “Utah Reed - Mustards”) covered three species each.

⁷ The Virginia sneezeweed, *H. virginicum*, is considered “improving” in part because of the discovery of some 44 occurrences of this plant (which had previously been believed to be limited to Virginia) in Missouri. <http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Helenium+virginicum> According to Natureserve, “[t]he draft Recovery Plan (U.S. Fish and Wildlife Service 2000), written before the Missouri plants were confirmed to be *H. virginicum* stated that delisting would be considered when twenty self-sustaining populations and their habitats have received permanent protection across the species' Virginia range.” Additionally, Natureserve reports, “[i]n 2000, a population of a *Helenium sp.* in a sinkhole pond near Pomona, Missouri, was determined to be *H. virginicum*, based on genetic work conducted by Simurda and Knox (2000). By early 2006, 44 native occurrences had been found within 6 counties: Howell (23), Oregon (1), Shannon (15), Texas (3), Webster (1), and Wright (1). All are within the Ozark Highlands in southern Missouri. The 1 km separation distance was used to define occurrences (Tim Smith, Missouri Dept. of Conservation, pers. comm. 2005). In addition, plants have been introduced at 9 sites, 3 on state lands and the remainder private. Probably 50% of the potential habitat remains to be surveyed.” (Underlining added).

Relationship of findings to H.R.3824

Several provisions of H.R. 3824, the Threatened and Endangered Species Recovery Act, would substantially improve the shortcomings revealed by the GAO analysis and by this report. These include:

- Requirement that recovery plans with recovery cost estimates and recovery dates be produced for a newly listed species within 2 years of listing (Sec. 9(a)(3));
- Requirement that a process be established to set deadlines for species that are already listed but which lack recovery plans and, as in the case of newly listed species, the plans include cost and time estimates for recovery (Sec. 9(a)(3));
- Requirement for improved reporting to Congress regarding the condition of listed species, including requirements that the reporting include a measurement that is more meaningful than the currently reported “status”(Sec. 9(a)(3));
- Requirement for production of economic impact analyses at the time of listing (Sec 4(a);
- Requirements for better tracking of Federal and State expenditures for the conservation of endangered and threatened species (Sec. 15(a));
- Provisions for reporting of expenditures by governmental entities below the state level so that total government expenditures may be more accurately reflected (Sec. 15 (a)); and
- Requirements that reports on expenditures and the condition of species as well as other information related to listed species be more accessible to the public to improve program transparency (Sec. 14).

Overview of GAO Analysis

The GAO has conducted an analysis regarding the endangered species recovery program and released a report on its website summarizing its findings on April 6, 2006. As part of its review GAO took a statistically significant sample of recovery plan (107 covering about 200 species) and analyzed the plans to see if they contained several elements including:

- **objective, measurable criteria** which, when met would result in a determination, in accordance with the provision of this section, that the species be removed from the list;
- **site-specific management actions** as may be necessary to achieve the plan’s goal for the conservation and survival of the species; and
- **estimates of the time required and the cost** to carry out those measures needed to achieve the plan’s goal and to achieve intermediate steps toward that goal.

GAO found that the degree to which recovery plans included objective and measurable criteria varied greatly. For example, only five plans were found to contain criteria that addressed all of the factors that are considered when making a determination regarding the delisting (or downlisting or listing) of a species. 57 plans had some criteria, 22 plans did not contain recovery criteria nor explain why such criteria were not included and 23 did not contain criteria on the basis that the species was presumed to be extinct or to be unrecoverable or because developing criteria was not practicable.

GAO found that most (103) plans had time and cost estimates for carrying out site specific management actions.

Although most plans contained descriptions of site specific management actions and associated cost estimates, these estimates typically only covered a period of 5 to 7 years and did not provide an estimated cost of recovery. GAO found that only 19 %, or 20 plans, contained an estimated cost of recovery. Similarly, while most plans contained time estimates for completing site specific management actions, GAO found that only 32% (34 plans) contained a time estimate for the species' recovery.

Committee Report

This report reviewed all of the plans identified by GAO as containing either an estimated recovery cost or estimated recovery time by comparing the cost identified by the plan with expenditures made primarily for the conservation of the species that were reported by the USFWS between 1989 and 2004. Additionally, for each species included in a plan that contained an estimated recovery time, information regarding the status of the species from the most recent USFWS recovery report to Congress and the Service's TESS (Threatened and Endangered Species database System) was reviewed for proposals or petitions to downlist or delist the species. All data in this report comes from the available USFWS reports on Species by Species Expenditures for the period 1989 - 2004, the 2004 Report to Congress on the Recovery Program, the USFWS TESS database and from the estimated recovery costs and recovery times GAO identified from USFWS and NMFS recovery plans.

Table 1 includes all species that were identified by GAO as having an estimated recovery date. The table includes the year the species was listed and the year of the recovery plan used in GAO's analysis. Additionally, Table 1 includes the most recently reported status of the species and the most recently reported recovery objectives achieved for the species. This information comes from the biannual Report to Congress issued by the USFWS. Another column indicates whether a species was downlisted or delisted or proposed for any change in status. This information was gathered from the USFWS's website.

Table 2 includes a column that indicates the number of years a species was listed under the ESA prior to the 1988 expenditure reporting requirement. Expenditures may have been made on the species during this period but expenditure data are not readily available. Table 2 also includes a column indicating reported expenditures on a species that occurred in the years for which such expenditures were reported but which occurred in years that predate the recovery plan used for GAO's analysis. These amounts range from \$27,000 to \$56,475,000. Additionally, Table 2 includes two columns that show the percent of reported expenditures on a species as a percent of the recovery plan's estimated recovery cost. One

column presents all applicable reported expenditures by Federal and State government as a percent of the recovery plan's estimated cost. Although recovery plans often call for Section 7 consultations and Section 7 expenditures are made for the conservation of species, arguably, these costs include expenditures by agencies other than USFWS or NMFS that relate to consultation under Section 7 and could be considered separate from a plan's estimated recovery cost. The other column presents only the applicable reported expenditures by the USFWS or National Marine Fisheries Service (NMFS)⁸ as a percent of the recovery plan's estimated cost. This expenditure data is provided only for those species for which the recovery plan's estimated date of recovery has passed. These FWS expenditures would not include other agencies' Section 7 expenditures. However, neither column captures expenditures to implement a recovery plan made by private parties.

⁸ NMFS is responsible for most marine and anadromous fish species that are included on the lists of endangered and threatened species.



TABLE 1
SPECIES WITH ESTIMATED
RECOVERY DATES

Plan Name	Date of Plan	Estimated Recovery Date	Status	Recovery Objectives Achieved	Proposed to Delist or Downlist
Neosho Madtom	1991	1997	Declining	0-25%	NO
Decurrent False Aster	1990	1997	Stable	51-75%	NO
Ruth's Golden Aster	1992	1998	Stable	26-50%	NO
Atlantic Salt Marsh Snake	1993	2000	Unknown	0-25%	NO
Stephens' Kangaroo Rat (Draft)	1997	2001	Declining	0-25%	NO ¹
Cheat Mountain Salamander	1991	2002	Stable	26-50%	NO
Sacramento Mountains Thistle	1993	2002	Stable	26-50%	NO
Least Tern (Interior population)	1990	2005	Unknown	0-25%	NO
Concho Water Snake	1993	2005	Stable	0-25%	NO
Wyoming Toad	1991	2005	Declining	0-25%	NO
Inflated Heelsplitter	1993	2005	Stable	0-25%	NO
Maguire Daisy	1995	2005	Stable	51-75%	Downlisted ²
Cumberland Sandwort	1996	2005	Improving ³	0-25%	NO
Little Colorado River Spinedace	1998	2007	Declining	0-25%	NO
Puritan Tiger Beetle	1993	2008	Stable	0-25%	NO
Palo de Rosa	1994	2010	Stable	51-75%	NO
Utah Reed-Mustards ⁴ (Shrubby reed-mustard)	1994	2010	Declining	0-25%	NO
Utah Reed-Mustards ⁴ (Clay reed-mustard)	1994	2010	Unknown	0-25%	NO
Utah Reed-Mustards ⁴ (Barneby reed-mustard)	1994	2010	Stable	0-25%	NO
Carter's Panicgrass	1994	2012	Unknown	0-25%	NO
Lake Erie Watersnake	2003	2013	Declining	0-25%	NO
Colorado Pikeminnow (Colorado Squawfish)	2002	2013	Improving	51-75%	NO
Paiute Cutthroat Trout	2004	2013	Stable	26-50%	NO
Pitcher's Thistle	2002	2014	Stable	0-25%	NO
Atlantic Green Turtle	1991	2015	Declining	0-25%	NO
Loggerhead Turtle, U.S. Population	1991	2015	Unknown	0-25%	NO
<i>Sidalcea oregana</i> var. <i>calva</i> (Wenatchee Mountains)	2004	2017	Improving	0-25%	NO
Caribbean Roseate Tern	1993	2020	Unknown	not reported	NO
Virginia Sneezeweed (Draft)	2000	2020	Improving ⁵	26-50%	NO
Holy Ghost Ipomopsis	2002	2023	Stable	0-25%	NO
Gulf Sturgeon	1995	2023	Stable	26-50%	NO
Shortnose Sturgeon	1998	2024	NA ⁶	NA ⁶	
Three Puerto Rican Plants ⁷ (<i>Mitracarpus maxwelliae</i>)	1998	2025	Stable	0-25%	NO
Three Puerto Rican Plants ⁷ (<i>Eugenia woodburyana</i>)	1998	2025	Stable	0-25%	NO
Three Puerto Rican Plants ⁷ (<i>Mitracarpus polycladus</i>)	1998	2025	Stable	0-25%	NO
Mead's Milkweed	2003	2033	Declining	0-25%	NO
Whooping Crane	2005	2035	Stable	26-50%	NO
Higgins Eye Pearlymussel	2004	2055	Declining	26-50%	NO

NOTES

1. While the species has not been proposed for delisting, a petition to delist the species has been filed. The U.S. Fish and Wildlife Service (USFWS) has not made a 12 month finding on this petition despite making a 90 day warranted finding on April 21, 2004.
2. Species downlisted as a result of taxonomic error, see text.
3. New populations of this species were discovered after listing, see text.
4. This species is included in a 'multi-species' plan.
5. New populations were discovered after listing, see text.
6. The National Marine Fisheries Service (NMFS) does not report these values.
7. This species is included in a 'multi-species' plan.



TABLE 2
SPECIES WITH ESTIMATED RECOVERY COST

Species (Recovery Plans GAO found with a Recovery Cost Estimate)	Years Listed Prior to Expenditure Reporting	Reported Expenditures Prior to Plan	Plan's Total Cost Estimate for Recovering Species	Reported Expenditures after Plan	Reported Expenditures as a % of Planned Recovery Cost	Plan's Recovery Cost Estimate	Plan's Recovery Date Estimate	FWS (only) Expenditures as a Percent of Estimated Recovery Cost
Neosho Madtom	0	\$48,000	\$412,000	\$1,448,000	351%	EXCEED	PAST	143.0%
Decurrent False Aster	1	\$52,000	\$58,100	\$631,000	1086%	EXCEED	PAST	829.6%
Ruth's Golden Aster	4	\$61,000	\$162,500	\$153,000	94%	Currently Within	PAST	37.5%
Sacramento Mountains Thistle	2	\$114,000	\$1,195,000	\$239,000	20%	Currently Within	PAST	13.1%
Least Tern (Interior population)	4	\$932,000	\$2,000,000 ¹	\$23,041,000	1152%	EXCEED	PAST	278.8%
Concho Water Snake	3	\$41,000	\$2,729,000	\$588,000	22%	Currently Within	PAST	19.7%
Wyoming Toad	5	\$260,000	\$1,600,000	\$2,335,000	146%	EXCEED	PAST	73.3%
Cumberland Sandwort	1	\$69,000	\$268,000	\$80,000	30%	Currently Within	PAST	20.5%
Little Colorado River Spinedace	22	\$1,650,000	\$2,405,000	\$4,322,000	180%	EXCEED	Currently Within	
Puritan Tiger Beetle	0	\$64,000	\$632,500	\$195,000	31%	Currently Within	Currently Within	
Carter's Panicgrass	6	\$27,000	\$515,000	\$112,000	22%	Currently Within	Currently Within	
Pitcher's Thistle	0	\$945,000	\$4,480,000	\$78,000	2%	Currently Within	Currently Within	
Green Turtle U.S.	11	\$2,263,000	\$80,950,000	\$58,575,000	72%	Currently Within	Currently Within	
Loggerhead Turtle U.S.	11	\$21,539,000	\$78,850,000	\$50,277,000	64%	Currently Within	Currently Within	
<i>Sidalcea oregana</i> var. <i>calva</i> (Wenatchee Mountains)	0	\$397,000	\$896,000	\$0	0%	Currently Within	Currently Within	
Gulf Sturgeon	0	\$856,000	\$8,413,000	\$5,585,000	66%	Currently Within	Currently Within	
Mead's Milkweed	0	\$953,000	\$5,930,000	\$54,000	1%	Currently Within	Currently Within	
Whooping Crane	22	\$56,475,000	\$125,000,000	\$0	0%	Currently Within	Currently Within	
Yellow-blotched Map Turtle	0	\$111,000	\$845,000	\$300,000	36%	Currently Within	Currently Within	

1. The plan for the least tern included a range for recovery cost (\$1,730,000- \$2,000,000) the upper bound, as reported by GAO, is used here.

Information Sources for this Report

The USFWS' Expenditure Reports

Expenditure data in Table 2 comes from reports issued by the USFWS pursuant to Section 18 of the ESA. Section 18 of the ESA requires that the USFWS annually report to Congress reasonably identifiable expenditures made primarily for the conservation of endangered and threatened species by the Federal government or by States that receive funding under Section 6 of the Act. This requirement was an amendment to the ESA adopted in 1988. Consequently, the first expenditure report produced covered 1989. The most recent report available is for 2004. Since the implementation of this reporting system, the methodology used in reports has changed from report to report. More recent reports generally reflect larger expenditures than prior reports. This may be attributed not only to increases in expenditures but also more comprehensive reporting of costs associated with endangered species conservation. These reports, however, likely do not trap all relevant expenditures by Federal or State governmental agencies as is addressed in a separate Committee report.⁹ Costs reported in the species expenditures reports include large costs reported by Federal agencies other than the USFWS or the NMFS. Additionally, the expenditure reports do not reflect expenditures by government below the state level or by private parties. Costs reported in Table 2 are rounded to the nearest thousand.

The USFWS' Report to Congress

Section 4(f)(3) of the ESA Requires the Secretary of Interior to report every two years to Congress with regard to the recovery program. In these reports the USFWS includes information about listed species. That information includes the "status" and the "recovery objectives achieved" measures for each listed species. The "status" measurement is a qualitative measurement with the possible values "declining," "stable," "improving," "extinct" and "unknown." The "recovery objectives achieved" measurement has the possible values 1 through 4. These measurements correspond with the percentile intervals 0-25%, 26-50%, 51-75% and 76-100%. The intervals are, according to USFWS, an estimate of the "extent to which the recovery objectives for each species has been achieved." In that these measurements are qualitative and subjective, their value and reliability can be questionable. Additionally, the meaning of a certain value can, in cases, be easily misinterpreted. For example, a species that is assessed as "improving" may have been assigned this value not because actual changes in the condition of the species but because of changes in information about the species such as information showing the species is more widespread or populous or information that indicates the species is less vulnerable to certain threats than was previously believed.¹⁰

⁹ See: *Implementation of the Endangered Species Act of 1973*, Report to the House Committee on Resources, May 2005, Majority Staff.

¹⁰ See: *Implementation of the Endangered Species Act of 1973*.

Sources:

Federal and State Endangered Species Expenditures, Fiscal Year 1989, U.S. Fish and Wildlife Service, January 1990.

Federal and State Endangered Species Expenditures, Fiscal Year 1990, U.S. Fish and Wildlife Service, January 1991.

Federal and State Endangered Species Expenditures, Fiscal Year 1991, U.S. Fish and Wildlife Service, July 1992.

Federal and State Endangered Species Expenditures, Fiscal Year 1992, U.S. Fish and Wildlife Service, July 1995 (?).

Federal and State Endangered Species Expenditures, Fiscal Year 1993, U.S. Fish and Wildlife Service, January 1995.

Federal and State Endangered Species Expenditures, Fiscal Year 1994, U.S. Fish and Wildlife Service, January 1997.

Federal and State Endangered Species Expenditures, Fiscal Year 1995, U.S. Fish and Wildlife Service, June 1998.

Federal and State Endangered Species Expenditures, Fiscal Year 1996, U.S. Fish and Wildlife Service, September 21, 1999.

Federal and State Endangered Species Expenditures, Fiscal Year 1997, U.S. Fish and Wildlife Service, August 30, 1999.

Federal and State Endangered Species Expenditures, Fiscal Year 1998, U.S. Fish and Wildlife Service, no date.

Federal and State Endangered Species Expenditures, Fiscal Year 1999, U.S. Fish and Wildlife Service, no date.

Federal and State Endangered Species Expenditures, Fiscal Year 2000, U.S. Fish and Wildlife Service, no date.

Federal and State Endangered Species Expenditures, Fiscal Year 2001, U.S. Fish and Wildlife Service, no date.

Federal and State Endangered Species Expenditures, Fiscal Year 2002, U.S. Fish and Wildlife Service, no date.

Federal and State Endangered Species Expenditures, Fiscal Year 2003, U.S. Fish and Wildlife Service, no date.

Federal and State Endangered Species Expenditures, Fiscal Year 2004, U.S. Fish and Wildlife Service, no date.

Recovery Report to Congress, Fiscal Years 2001-2002, U.S. Fish and Wildlife Service, Arlington, VA.

[Species Proposed for Status Change or Delisting](#)

USFWS, Threatened and Endangered Species database System (TESS) Website.