



Guidelines for Developing Status-Determining Criteria

**Kim E. W. Sheldon &
Douglas P. DeMaster**

National Marine Mammal
Laboratory
Alaska Fisheries Science
Center, NOAA, NMFS
7600 Sand Point Way N.E.
Seattle, WA 98115-6349,
U.S.A.
kim.shelden@noaa.gov

Abstract

Currently, the Endangered Species Act (ESA) employs a two-tier system, listing species either as endangered (in danger of extinction) or threatened (likely to become endangered). One approach, to reassert scientific objectivity in the classification process, has been to develop status-determining criteria for each ESA category. When developing criteria, however, it is important that they be not only credible but also legally defensible and fair. In addition, status-determining criteria should provide clear, predictable, repeatable results. The absence of objective guidelines in the listing and reclassification process has left the entire ESA classification process open to subjective decision making that is often inefficient, inequitable, and not legally defensible in the court system. It is recommended that status-determining criteria should be developed that are consistent with existing regulations, objective, equitable (i.e., based on risk of extinction), efficient (i.e., relatively easy to implement with available data), and designed to incorporate uncertainty appropriately.

Resumen

Actualmente, la ley de especies en peligro de extinción (ESA en Inglés) usa una sistema de dos categorías, listando especies en peligro (de extinción) o amenazadas (con probabilidades de llegar a estar en peligro de extinción). Un método, para reestablecer la objetividad científica en el proceso de clasificación, es el desarrollo de criterios que determinan el estado para cada categoría de la ESA. Los criterios que se desarrollen deben ser no solamente creíbles, pero también defendibles legalmente y justos. También, deben facilitar resultados claros, predecibles, y repetibles. La ausencia de directivas objetivas en el proceso del listado y reclasificación ha dejado el proceso entero abierto a decisiones subjetivas las cuales son ineficaces, injustas, y sin defensa legal en el sistema judicial. Recomendamos desarrollar criterios que sean consistentes con regulaciones existentes, objetivos, justos (con base en el riesgo de extinción), eficaces (de relativamente fácil implementación con los datos existentes), y diseñado para incorporar la incertidumbre de manera apropiada.

The thrust of the U.S. Endangered Species Act (ESA) is the conservation of species at risk of extinction. To meet this mandate, the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (hereafter referred to as the Services) must determine levels of vulnerability based on scientific data. Currently the ESA employs a two-tier system, listing species either as endangered (in danger of extinction) or threatened (likely to become endangered). The lack of objective guidelines to direct listing decisions has led to inconsistencies and inequities in the listing process. Agencies often make decisions based on limited resources and under the influence of "other social, environmental, or economic objectives" (Taylor et al. 1996). Mangel et al. (1996) recommend establishing procedures to guide decision making to reduce these influences. One approach to reassert scientific objectives has been to develop some form of status-determining criteria for each ESA category (e.g., Taylor et al. 1996, Gerber and DeMaster 1999, Sheldon et al. 2001).

When developing criteria, however, it is important that they be not only credible, but also legally defensible and fair. Listing and reclassi-

fication decisions must be rationalized to the best extent possible. They should reflect the substantive policy goals of equity and efficiency (Weimer and Vining 1992) and must appear to be predictable, consistent, and sound. It may help to consider the following guidelines or "criteria for criteria" when selecting thresholds for endangered and threatened status (Table 1). To be consistent with the ESA, criteria should work within the framework of the five factors and the status definitions (Table 1, Point 1). Listing and reclassification actions on the List of Endangered and Threatened Wildlife (50 CFR 17.11) are based on five factors (Table 2), of which only one need apply for a species to be listed as either threatened or endangered. These five factors consider the circumstances under which species are more vulnerable to extinction. The factor(s) that contributed to the listing of a particular species should be addressed within the status-determining criteria developed for that species. The status definitions of endangered and threatened should also serve as a guide, albeit a broad and vague one, for establishing thresholds or benchmarks for the categories of endangered, threatened, and recovered.

Table 1. "Criteria for criteria"

1. Consistent: status-determining criteria should be consistent with the conventions that currently exist under the ESA such as the five factors (see Table 2) and the status definitions.
2. Objective: criteria should be objective in the sense that they minimize interpretation and judgement.
3. Equitable: classification decisions should be equitable, guiding research and funding toward those species in greatest need, not those that are more charismatic.
4. Efficient: decisions should be made efficiently, status-determining criteria should help to expedite the listing and reclassification process by providing thresholds for each status level, and help to focus funding and research in areas that are data deficient.
5. Address Uncertainty: status-determining criteria should include a "safety factor" for uncertainty in the form of conservative criteria, by using models to incorporate uncertainty or by including policy alternatives that allow flexibility in the decision process.

Status-determining criteria should provide clear, predictable, repeatable results. To be objective, criteria cannot be open to multiple interpretations or judgements; they need to minimize the subjective nature of current listing decisions (Table 1, Point 2). Classification criteria should provide a clear decision path for managers based on what is known, as well as not known, about the species. Developing thresholds for endangered and threatened status links the prohibitive and protective measures of the ESA to a goal: recovery of the species. Emphasizing the concept of recovery and removing the ad hoc approach to classifying species should help regulators and those in the regulated community to focus on “problem-solving” rather than the ESA’s prohibitions (Cheever 1996).

The absence of classification criteria within the ESA and within the regulations promulgated by the Services makes comparisons of level of endangerment across taxa difficult (Easter-Pilcher 1996). This has led to inequities in project funding where “charismatic mega fauna” (high-profile vertebrates) have benefited more than other species (Mann and Plummer 1992) (Table 1, Point 3). From 1981 to 1986, 5% of listed U.S. species received approximately 45% of the funding available for recovery plan development and implementation (S. Rep. No. 204, 100th Cong., 1st Sess. 9 (1987)). The General Accounting Office (GAO) noted that the USFWS disproportionately allotted resources toward “either high profile, low-priority species, or on low priority tasks for high-priority species” (GAO 1988). This fiscal discrepancy continued in 1990 despite criticisms by the GAO and

1. The present or threatened destruction, modification, or curtailment of habitat and range.
2. Overutilization for commercial, recreational, scientific, or educational purposes.
3. Disease or predation.
4. Inadequacy of existing regulatory mechanisms.
5. Other natural or manmade factors affecting its continued existence.

Congress. Of \$102 million appropriated for 591 taxa, \$55 million went to 12 species, while \$28 million was shared among 570 “low-charisma” species (Winckler 1993). Species-specific status-determining criteria should clearly define the level of endangerment, enabling managers and decision makers to direct resources and funding toward those species in greatest need of protection. Criteria should also aid wildlife managers by revealing where gaps in data exist (Table 1, Point 4), allowing managers and decision makers to focus their research and monitoring efforts. The result would be the more equitable and efficient use of an already limited USFWS budget (Vig and Kraft 1997).

According to Holt and Talbot (1978), “management decisions should include a safety factor to allow for the facts that knowledge is limited and institutions are imperfect.” These safety factors would consider the levels of risk associated with decisions that are based on incomplete data (e.g., Ralls et al. 1992, Maguire 1994, Taylor et al. 1996). It is of critical importance to spell out the consequences of scientific ignorance to policy makers, particularly when assessing potential threats to species survival (Taylor 1993, Dovers et al. 1996, Mayer and Simmonds 1996). Otherwise, decision makers may use uncertainty

Table 2. Five factors used in ESA listing and reclassification actions to consider in forming status-determining criteria.

as an excuse to avoid action. Criteria may be developed by adopting conservative thresholds, using models that incorporate uncertainty, or including a range of alternative policy responses to encompass the range of evaluation outcomes (Table 1, Point 5).

The scientific process is fraught with uncertainty; it is the objective of science to incrementally reduce the level of uncertainty through hypothesis testing. Causes of uncertainty range from investigator error and poor data collection to environmental stochasticity, indirect effects, non-independent effects, and cumulative space effects (Meffe and Carroll 1994). These perceived weaknesses in scientific analyses and data are often exploited, even distorted, in the courtroom (e.g., northern spotted owl litigation: see Noon and Murphy 1994). In these instances, the "burden of proof" is placed on the scientists proposing listing rather than those planning actions that will modify habitat or harm a vulnerable species (NRC 1995). Adopting scientifically defensible criteria might reverse this trend in the courts by "rationalizing" the listing decision.

"...a decision may be rational if it can be tested or "verified" against criteria or data determined independently and if it satisfies a goal thought, on a priori grounds, to be appropriate for that science. The criteria and the data used are supposed to be "objective" in the sense that they minimize interpretation and judgement so that, at least in principle, anyone who applies the same criteria to the same data will get the same result... ." (Sagoff 1987:308).

The absence of objective guidelines in the listing and reclassification process has left the entire process open to subjective decision making that is often inefficient, inequitable, and not legally defensible in the court system. Considering the five points provided in Table 1, status-determining criteria should provide decision makers with the tools they need to make defensible decisions that support best management practices in the face of scientific uncertainty.

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