Do Habitat Conservation Plans Protect Endangered Species?

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The number of threatened and endangered (T&E) species in the United States is increasing monthly and critical habitat is constantly being destroyed. The number of newly listed T&E species greatly outweighs the number recovered from threatened extinction, and the federal and state governments demonstrate little desire to step in on behalf of species at risk. These ecological crises faced by endangered species (*1*) may be exacerbated by the application of one aspect of the Endangered Species Act (ESA)—habitat conservation plans (HCPs). Many T&E species will be at a crossroads over the next few years and the strength and use of the ESA will determine their fate.

Habitat Conservation Plans

The federal agency charged with T&E species protection is the U.S. Fish and Wildlife Service (F&WS). Agency biologists indicate that at present their major conservation activity for T&E species is participation in the Incidental Take Permit (ITP)/HCP process (*2*). Internal F&WS guidelines encourage agency staff to facilitate and streamline this HCP process (*3*). At the same time, resources are not being allocated to other aspects of T&E species protection (such as listing decisions, critical habitat designation, and recovery plan implementation). In fact, the Clinton Administration's newest budget proposal requests decreased funding for listing of endangered species, an already underfinanced program.

The ESA permits "incidental take" of species listed as T&E as long as an HCP is concurrently developed. But HCPs do not require recovery of listed species; they only must ensure that "the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild"(*3*). Thus, HCPs are not "plans provid[ing] protection for currently endangered species" (*1*), because there is no promise of recovery of these species. The cumulative effect of this planning process across the landscape on survival of endangered species has not been adequately addressed by the Department of the Interior, which implements the ESA. Unanswered questions are: Given that recovery is not a goal of the HCP process, what is the likelihood that physically adjacent HCPs will actually protect listed species? Should we conduct landscape scale experiments (10^5 to 10^6 acres) before testing ideas and analyzing results on a smaller (10^3 to 10^4 acres) scale?

Although, in a section separate from the one regulating HCPs, the ESA requires that recovery plans be developed by the F&WS and other responsible government agencies, these plans are rarely enacted. Of over 1500 listed species, only one-third have fully developed recovery plans (*4*). The implemented plans tend to be for high-profile species, such as the bald eagle and the gray wolf. In addition, critical habitat designation is required for listed species, which, along with implementation of science-based recovery plans, should theoretically initiate recovery of target species. But a combination of private property rights activists and commercial extraction interests has stonewalled critical habitat designation. As a result, true recovery is not occurring effectively. Although HCPs are being more uniformly applied, they only require no appreciable reduction in population, so many listed species are left in the position of the butterflies on Jasper Ridge (*5*) and those described by Dobson *et al.* (*6*)—barely surviving in small isolated populations. The threats posed to such populations by stochastic natural and human-caused disasters (including inappropriate economic activity) are great.

Even when recovery plans have been developed, goals have often been set below the existing population size at the time of listing, a strategy that has provoked the admonition that species are being "managed for extinction" (*7*). The combination of HCPs and weak recovery goals puts virtually any listed species in jeopardy of extinction, which is counter to the spirit and letter of the ESA.

Why are there so many examples of this trend in endangered species protection? The answer may lie in the recent shift in policy trajectory by the Clinton Administration away from confrontational and litigious approaches to T&E species and toward a more subtle strategy of "win-win" compromises under the ESA. Recently, the number of ITP/HCPs in various stages of development has skyrocketed from a few dozen in the late 1980s to over 350 today. Relying on the notion that a negotiated compromise is good, this untested process has supplanted the more conventional and controversial critical habitat designation and recovery plan implementation. The extent of land area and the number of species that HCPs collectively cover puts a very heavy burden on the outcome of this experimental management option.

One of the most troubling aspects of the HCP process is the "no surprises" policy (*3*). This allows HCP permittees the assurance that there will be no changes in their obligation during the course of an HCP, regardless of any new biological information. This could be in the form of discovery of a newly listed species within the HCP area or a decline in an existing listed species. The lifetimes of HCPs are in the range of 20 (*8*) to 100 (*9*) years. During this time, species included in an HCP would have to resist population decline, despite incidental taking, because there are no assurances for remedial measures to ensure viability. In addition, there is no comparable assurance from the ITP applicant for the agency and the listed species that the conservation concessions at the outset will be adequate for the species' needs. If any action is required in the event of an unforeseen negative impact on listed species, then all costs for mitigating the impact must come from the responsible government agencies (*10*). Such a policy runs counter to rational conservation of species at risk of extinction, but is regarded by federal agencies and even some environmental organizations as a necessary evil to accommodate wary landowners. This policy is currently undergoing a public review process, due to a civil suit filed against the F&WS.

Yolo County HCP

In Yolo County, California, there is a regional ITP/HCP in the final stage of drafting (*8*) that would provide a blanket ITP to developers for 29 target species, 12 of which are listed T&E at the state or federal level. A group of 12 scientists at the University of California, Davis, reviewed the plan and uniformly found it to be scientifically inadequate. The consulting firm that wrote the plan and local politicians now refer to the HCP as a political document, downgraded from its previous description as a scientific habitat plan.

The multispecies Yolo County plan (*8*) was developed primarily around the habitat needs of the Swainson's hawk, which conveniently roosts in riparian corridor trees and can forage in row crop fields, which are abundant in this farming county. The hab-

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itat needs of various other target species (including vernal pool plants and animals) are addressed with varying accuracy in the plan, but no suitable mitigation strategy is described for them. A generic 1:1 ratio of mitigation habitat to habitat destroyed is assumed to cover the needs of all species. Theoretically, the mitigation habitat would (i) be created anew, (ii) result from enhancement of existing potential habitat, or (iii) be conservation easement on existing agricultural land in production. There is no description in the plan for baseline surveying, subsequent periodic monitoring, or feedback to modify the plan if it results in jeopardy to listed species.

The F&WS and California Department of Fish & Game were both party to the development of the plan and stated in a draft implementation agreement to the county and cities that they were prepared to grant the incidental take permit and approve the HCP prior to the scientific review (*10*) and in the absence of an environmental impact study (a negative declaration decision was given). The agencies also found the plan to be adequately funded as required by the ESA. The mitigation fee ($2,640) charged per acre of developed land is (i) enough to buy one-fourth acre of good agricultural land, (ii) at the low end of income to farmers per acre-year, and (iii) represents 1 to 2% of the profits made in developing the acre. Considering also that the cost of habitat restoration and creation cannot be calculated because no protocols have been described, it is doubtful that the conservation strategies in the plan will actually be paid for. Because the agencies were ready to approve this plan, scientists should be concerned about the process involved in developing HCPs and the standards used in decision-making about listed species conservation.

Solutions

Because there have been few reviews of specific HCPs, any recommendations regarding the overall process must be limited to questioning of and correction to the fundamental design. The following are a few issues raised during the review of the Yolo County HCP and reading of associated documents (*3*, *8*, *11*) that should be addressed before any further use is made of the ITP/HCP process: (i) Designing a multiple species plan around the needs of one or two species leaves the habitat requirements of the other species in jeopardy due to inappropriate mitigation. (ii) Most HCPs lack adequate baseline information about population size of target species and actual habitat use, primarily because of the generalized lack of such information. Increased funding of agencies such as the F&WS and the National Biological Service could accomplish this goal. (iii) HCPs that have reasonable technical documents describing species and habitat requirements do not necessarily make use of this information in the implementation and mitigation phases of the HCP (*8*, *11*). The implementation agreement between F&WS, state agencies, municipalities, and private landholders must be based upon the habitat needs of healthy populations of target species. (iv) The no surprises policy is unacceptable if a goal of the HCP process is to decrease risks to target species posed by human activity. A good HCP would have as a guiding mechanism a continuous feedback of data supplied by a monitoring program that would allow modification of the terms of the HCP if there were indications that listed species were not recovering in the study area. (iv) Although a policy of incidental take of listed species was leveraged into the ESA in 1982 to allow for fewer hindrances on economic activity, there is no evidence that this policy is consistent with either a standard of no further threats to species survival or the philosophy of protection for and recovery of listed species that the original act espoused. Until this policy has been demonstrated to be harmless to the recovery of listed species, it should be removed from the ESA, or used only during the monitoring period after a species has been delisted due to recovery.

These HCP recommendations can be complemented by ways of reauthorizing the ESA that will encourage higher rates of recovery, lower rates of endangerment, and stronger habitat protection. Fewer species at risk means lower management costs, less conflict, and healthier ecosystems. The leading reauthorization bills for the ESA currently in Congress would codify the current ITP/HCP process, at the expense of the stronger and more conservative recovery standard. The following are procedures that are consistent with a standard of protecting and actually recovering T&E species. (i) Speed up the listing process to a period of months, rather than the years it can take currently for a species already at risk of extinction. Adequately fund this process so that a lack of money is never an issue for a listing decision. (ii) In recognition of ecological needs of listed species, the Department of the Interior should declare critical habitat at the time of listing with the designation dependent on the habitat requirements of the species, as opposed to extractive and development activities in the area. (iii) Regionally negotiated agreements should conform to a recovery standard and should be developed only after implementation of a recovery plan that results in increased numbers and size of populations of listed species. (iv) Recovery goals should be driven by a standard that is several-fold higher than the minimum viable population, to decrease the risk that unanticipated events inevitably pose to small numbers of populations or individuals of a species. Needless to say, recovery plans should be adequately funded.

There are now over 350 ITP/HCPs in various stages of development (9). The plans vary in quality, but typically claim to meet the minimum standard of no threat to species survival. If they are at all like the Yolo County HCP, then T&E species all over this country are in serious jeopardy. A group of biologists has temporarily stopped one plan because of its inadequacy, but how many more are being approved with little or no review by independent academic biologists?

With one-fourth of mammalian species at risk of extinction and amphibians on the decline, proactive measures that actually protect endangered species are in order. The scientific community must begin to draft appropriately conservative recommendations for managing human activities that threaten endangered species, including the possibility of disallowing incidental take of listed and candidate species until recovery has been achieved. These recommendations must then be incorporated into the ESA that is currently being rewritten. The public (*12*) and members of the Society for Integrative and Comparative Biology (*13*) have called for a strong ESA. If biologists do not have significant input into this process, already imperiled species will face even greater risks of extinction.

REFERENCES AND NOTES

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