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LESSONS FROM REINTRODUCTION: THE BEAR AND THE WOLF

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BIODIVERSITY PROTECTION:
IMPLEMENTATION AND REFORM OF THE
ENDANGERED SPECIES ACT

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Lessons from Reintroduction: the Bear and the Wolf

by Michael Roy

I. Summary

Species reintroductions have been an integral component of wildlife restoration efforts for nearly a century, both in North America and more recently across the globe. Most early reintroductions focused on rebuilding game populations, but many efforts today are associated with recovery plans for species listed as threatened or endangered under the Endangered Species Act (16 USC §§ 1531 et seq.).

Reintroduction planning should pay equal attention to ecological, social, and economic constraints and opportunities. For example, the decision to reintroduce extirpated species demands careful assessment of scientific risk and potential for success. Habitat quality must be evaluated, the effect of translocation on source populations must be considered, an estimate of minimum number of founders must be developed, and adaptive management strategies must be available for the inevitable surprises that reintroduction programs will experience.

Reintroductions also face sociopolitical hurdles; these barriers may be especially daunting in large carnivore reintroductions. Conflict has surrounded reintroduction efforts for red wolves in the eastern states, Mexican wolves in the Southwest, and gray wolves in the northern Rockies. Public acceptance may well be the deciding factor in whether grizzly bears can be reintroduced to portions of their former range in the western states.

Scientists and advocates debate the rationale and efficacy of some reintroductions. Proponents point out that reintroduction techniques have been refined for generations and that programs have largely been viewed as successful.

Reintroductions are seen as avenues to speed population restoration in habitats that are unavailable to natural recolonization due to human-created or natural barriers to movement. Finally, reintroductions can serve as powerful educational tools and can be centerpieces of broader ecological restoration and preservation efforts.

Critics maintain that reintroductions too frequently target charismatic taxa and use scarce funds better spent on ecosystem restoration and/or protection. They also express concern for the effects of removal of founders on source populations, and reject the considerable level of manipulation (i.e., extensive handling, periods of captivity, and use of radiotelemetry techniques) that reintroductions may entail. Finally, some reintroduction policies may reduce legal protections in place for any individuals of a species that may remain unnoticed in a reintroduction area.

Most listed species reintroduction efforts in recent years have been implemented under ESA Section 10(j) -- the experimental, nonessential provision. This 1982 ESA amendment authorized experimental populations as a way to build support for controversial reintroductions through enhanced management flexibility.

Experimental populations must meet criteria of geographic separateness from existing populations, must lie within the historic range of the species, and cannot retain an existing population of the species.

Experimental populations receive similar protections as threatened species, except that Section 7 consultations on federal lands (other than lands administered by the National Wildlife Refuge System or National Park System) are waived and critical habitat is not designated.

After many years of debate, gray wolves were reintroduced as experimental populations in Yellowstone National Park and the wilderness area of central Idaho during the winters of 1995 and 1996. A total of 66 animals were released; at this writing (May, 1996), 8 animals have been lost to human-caused mortality or predation and 9 pups have been born (in 1995). It is possible that 60 or more pups will be recruited into the two populations this year. Only 1 confirmed livestock depredation event, involving 2 sheep, has occurred; a private organization, Defenders of Wildlife, compensated the rancher at a market rate of \$260. Recovery (defined in the 1987 recovery plan as 10 breeding pairs in the Yellowstone, central Idaho, and northwest Montana recovery areas for 3 consecutive years) is predicted by 2002.

With Yellowstone wolf recovery underway, attention is turning to restoration of the grizzly to portions of its historic range. Wolf recovery pointed out the need to acknowledge potential economic effects on rural communities; grizzly reintroductions will also have to address concerns for human safety and more substantive public participation.

A coalition of conservationists has joined with representatives of the timber industry and labor unions to propose reintroduction of grizzlies in the 15-million-acre Bitterroot Ecosystem in western Montana and central Idaho. Highlights of this plan, now being included as an alternative in an environmental impact statement to be released by the U.S. Fish and Wildlife Service in June, include experimental, nonessential designation and creation of an innovative public-private co-management framework under which citizens will exert actual management authority in recovery planning.

In the future, reintroductions will be integral parts of ecosystem preservation and restoration strategies. As complex endeavors, they will always face scientific uncertainties; social barriers may best be surmounted through new approaches to recovery planning that provide concrete avenues for local participation and avoid the polarization that so often obscures endangered species conservation efforts.

II. Reintroduction as a tool of biodiversity protection

- A. Reintroductions, translocations, and augmentations (see Appendix I definitions) predate the Endangered Species Act and have been "standard operating procedure" for North American game mammals, birds, and fish for a century.
1. Between 1910 and 1970, over 6,000 elk were translocated within the State of Montana alone. Similarly, over 3,500 pronghorns were translocated either as reintroductions or augmentations of faltering herds.
 2. Hundreds of programs have taken place to reintroduce white-tailed deer, wild turkeys, wild sheep, and other game animals across the country.
- B. Increasingly, reintroductions have targeted threatened or endangered species.
1. Trumpeter swan recovery has relied heavily upon reintroductions into historic range.
 2. Woodland caribou reintroductions and augmentations have met with varying degrees of success in Idaho and Maine and are proposed for Washington.
 3. Over 300 black-footed ferrets have now been reintroduced in 3 states, though survival has been poor.
 4. There is hope that augmentation of faltering Florida panther populations with individuals of a closely-related subspecies will prevent ongoing

genetic impoverishment and subsequent population decline.

5. Current consideration of down-listing or even de-listing the American peregrine falcon is directly attributable to extensive reintroduction efforts.

C. In the last few decades, reintroductions have become a global wildlife conservation tool with diverse benefits.

1. Dating as far back as 1942, Alpine ibex were reintroduced in the Swiss Alps, where they now number more than 12,000.
2. Golden lion tamarin reintroductions in Brazil have been the centerpiece of broader environmental education efforts directed at forest ecosystem conservation.
3. Arabian oryx reintroductions in Oman served development as well as conservation goals by providing employment for local inhabitants.

D. Several common attributes of successful reintroductions have been identified. Many of them point out the challenges of large carnivore reintroductions:

1. Herbivores are more likely to be successfully reintroduced than carnivores or omnivores.
2. Increased habitat quality is associated with increased reintroduction success.
3. Taxa with high reproductive rates are more successfully reintroduced than slow reproducing taxa.
4. To a point, larger founding populations are more successful than smaller populations.
5. Reintroductions into areas with competitors are less successful than those into areas without competitors.

III. The arguments for and against reintroduction

- A. Reintroduction is a time-tested technique well-suited to situations where cause(s) of extirpation are understood and remedied.
1. Reintroductions can serve as components of larger ecosystem restoration efforts.
 2. Crisis situations may call for more rapid population restoration than natural recolonization would allow.
 3. Because of their relative speed (when compared to natural recolonization and the long-term monitoring and habitat restoration that it may entail), reintroductions may be more cost-effective than natural recolonization.
 4. Reintroduced populations of rare species may serve as educational and political tools for broader ecological restoration and preservation actions.
 5. The uncertainties surrounding some reintroductions offer opportunities for "social learning" and adaptive management.
 6. Reintroductions can link *ex situ* and *in situ* conservation efforts.
- B. Reintroduction is a band-aid approach to conservation that detracts from broader biological conservation agendas.
1. Experimental designation reduces protection for any individuals that may persist in the experimental area.
 2. Reintroductions may jeopardize source population viability.
 3. Reintroductions target charismatic taxa and use funds better spent on ecosystem restoration and/or protection.

4. Reintroductions of large carnivores may endanger human safety.
5. Reintroductions may place substantial restrictions on traditional economic and social activities.
6. Reintroduced species may negatively affect resident species, through competition or predation.
7. Some reintroductions fall short of accepted goals of establishing free-roaming populations subject to natural conditions and minimal human influences.

IV. Section 10(j) and the ESA

- A. Most listed species reintroduction efforts in recent years have been implemented under Section 10(j) -- the "experimental, nonessential" provision of the ESA.
 1. The 1982 ESA amendment authorized experimental populations as a way to build support for controversial reintroductions through enhanced management flexibility.
- B. Populations designated as experimental must meet three criteria:
 1. Geographic areas designated as experimental population areas cannot contain an existing population of the species in question. Thus, Section 10(j) pertains to reintroductions rather than augmentations.
 2. Areas designated as experimental population areas must lie within the historic range of the species in question.
 3. Areas designated as experimental population areas must be geographically separate from existing populations of the species in question.
- C. Experimental populations are treated as threatened species, except that Section 7 consultations on federal

lands are waived and critical habitat cannot be designated.

1. Section 7 is not waived on lands administered by the National Wildlife Refuge System or National Park System.

D. Experimental, nonessential reintroductions have been conducted or proposed for several taxa, including the black-footed ferret, red wolf, Mexican wolf, and, of course, the gray wolf and the grizzly bear.

V. Case studies: The wolf and the bear

A. After extirpation in the 1920's, natural recolonization of wolves began in northwestern Montana in the late 1970s.

1. The first interagency meeting to discuss wolf recovery was held in Yellowstone in 1971.
2. The first documented reproduction in 50 years took place in 1986 west of Glacier National Park.
3. Natural recolonization was viewed as likely in Yellowstone at some point in the future, but many scientists thought that recovery could be greatly accelerated through reintroductions.
4. After more than a decade of scientific studies and policy debates, a Congressionally-mandated EIS called for experimental, nonessential reintroductions in Yellowstone National Park and central Idaho.
5. The U.S. Fish and Wildlife Service conducted an unprecedented public involvement process that included nearly 100 public hearings, mailing lists in the tens of thousands, and review of over 160,000 comments.

B. Reintroductions took place in Yellowstone and central Idaho during the winters of 1994-95 and 1995-96. A total of 66 animals were reintroduced.

1. Mortality from both populations has been considerably lower than expected, and reproduction has exceeded expectations. To date, only 8 individuals have been lost from the two populations and a minimum of 9 pups have been born.
 2. The U.S. Fish and Wildlife Service anticipates recruitment of 30-40 pups in each area in 1996.
 3. The U.S. Fish and Wildlife Service now predicts that recovery will occur by 2002.
 4. Depredations have been few; 1 sheep depredation event has occurred, and 1 domestic dog has been killed.
- C. Both governmental and non-governmental programs are in place to minimize and/or reimburse for wolf depredations.
1. Defenders of Wildlife has had a wolf compensation fund in place since 1987 which has to date reimbursed ranchers for \$20,000 of confirmed wolf depredations in northwest Montana, Canada, and the Yellowstone experimental area. Defenders has also purchased hay for ranchers who agreed to move livestock away from den sites, as well as electric fencing.
 2. The U.S. Fish and Wildlife Service and APHIS-ADC have worked to alert landowners to wolf presence, to promptly investigate suspected depredations, and in several instances to relocate or destroy problem animals.
 3. The wolf experimental rule included no land use restrictions with the exception of the availability of temporary restrictions near den sites; to date, this authority has not been used.
- D. After this lengthy, seemingly inclusive planning process, and nearly one and a half years after initial

reintroductions, polarization and litigation continues to surround wolf recovery.

E. Since listing as threatened in 1975, recovery of the grizzly bear has been an ever-greater challenge for wildlife professionals and federal land managers.

1. At the time of listing, populations had declined to less than 1,000 individuals.
2. Annual human-caused mortality was unsustainable.
3. Habitat degradation on both public and private lands was accelerating.
4. In the ensuing two decades, grizzly conservation has been controversial, and there are diverse opinions as to the program's success.

F. There is widespread agreement that eventual grizzly recovery requires population reestablishment in the Bitterroot Ecosystem of central Idaho and western Montana.

1. The Ecosystem includes a minimum of 15 million acres of historic habitat, 3.9 million of which is designated wilderness.
2. Grizzlies were extirpated from the Bitterroot in the 1940's, largely through uncontrolled shooting.
3. The Ecosystem's environmental baseline has also changed over time, with loss of anadromous fish runs, declines in one preferred food source -- whitebark pine -- and increased land management activities, including timber harvest and associated road-building, on the periphery.
4. Nonetheless, the Bitterroot could support a substantial grizzly population, and could serve to reconnect currently-isolated grizzly populations in the Cabinet-Yaak, Yellowstone, and Northern Continental Divide Ecosystems.

G. We propose the first-ever reintroduction of grizzlies in North America (population augmentation has taken

place in the Cabinet-Yaak Ecosystem of northwestern Montana) for the Bitterroot, using the experimental, nonessential provision and a new co-management model.

1. The Bitterroot Ecosystem meets the 3 criteria for experimental designation listed above.
2. Our co-management model includes a 15-member public-private committee that, rather than advising agency officials, would, within established boundaries, set policy.
3. This approach should institute a more balanced distribution of authority -- and thus responsibility for program success -- between federal, state, and local participants.

VI. Lessons

A. Wolf reintroductions have taught us a series of scientific and social lessons that are applicable to grizzly and other future reintroductions.

1. Reintroductions are biologically uncertain processes and cannot be forecast with high degrees of confidence. Adaptive management approaches are called for.
2. Once biological assessments are completed, reintroduction success can best be maximized by careful attention to issues involving human perceptions.
3. Traditional approaches to public participation may no longer be adequate to gain public acceptance in some cases, especially in large carnivore reintroductions.
4. Recovery program managers must be willing to relinquish some control and accept risk in order to re-energize the public participation process.
5. Economic incentives must be incorporated into reintroduction plans as needed.

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Appendix I: Definitions

Augmentation- The deliberate release of individuals of a species, either from wild populations or from captive populations, into a wild population that has declined to non-viable levels.

Introduction- A generic term which typically refers to placement of non-native taxa into suitable habitat.

Recolonization (Natural)- Movement of wild individuals of a species back to an area of historic range from which they have been eliminated by either human or other agency.

Reintroduction- The deliberate release of individuals of a species into an area from which it has been lost, with the aim of establishing a self-sustaining and viable population.

Translocation- The deliberate transfer of individuals of a species from one wild population to another wild population.

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