

Measures of the Value and Success of a Reintroduction Project: Red Wolf Reintroduction in Alligator River National Wildlife Refuge

by
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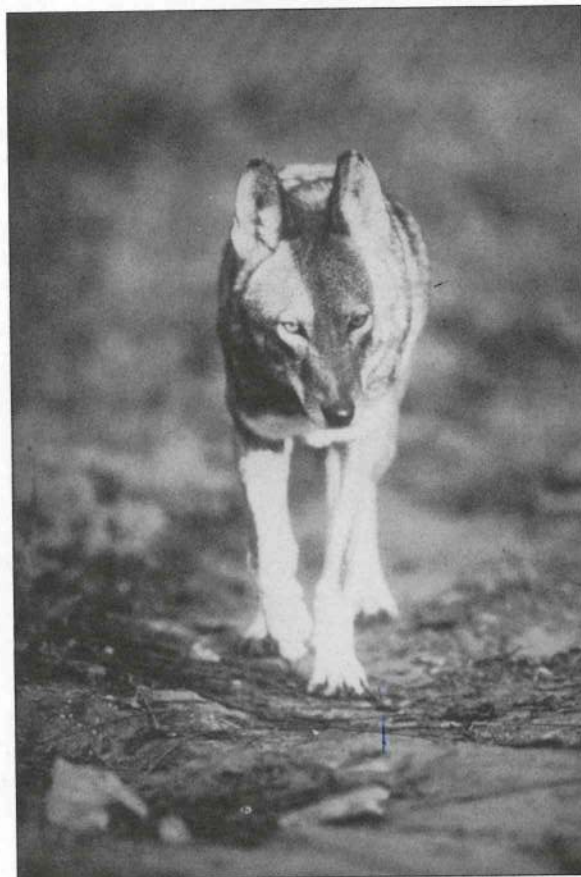
Reintroduction is an important technique for recovering endangered and threatened species (Griffith et al. 1989). Unfortunately, the technique is complex and costly (Clark and Harvey 1988), and there are few if any accepted guidelines for defining its value and success. Although these concepts will be defined in part on a species by species basis, the task of identifying the various values and successes of a reintroduction project has important ramifications for determining the potential merit and effectiveness of reintroduction programs in general.

Since 1973, the endangered red wolf (*Canis rufus*) has been the focus of a federal recovery program (Carley 1975, U.S. Fish and Wildlife Service 1984, Parker 1988) (see case history). In 1987, the U.S. Fish and Wildlife Service (USFWS) intensified recovery efforts by initiating a reintroduction project at the Alligator River National Wildlife Refuge (ARNWR) in north-eastern North Carolina (Smith and Phillips 1987, Phillips 1988, Phillips and Parker 1988, Meese 1989, Phillips 1990, Parker and Phillips in press). In this paper I discuss some interim measures of the value and success of this ongoing project.

Measures of Value

The reintroduction of red wolves into ARNWR was accomplished only after the USFWS carried out an education program that prompted many people to change their attitudes toward other species, even so-called "varmits" like wolves. The change represented a shift

away from the historic belief that wolves are a serious and consistent threat to human safety and a competitor with hunters for game. Since the first red



Red wolf (*Canis rufus*)

Photo by M.K. Phillips

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wolves were released, the project has been offered as badly needed proof that wilderness species and humans can coexist.

The red wolf is believed to have evolved solely in North America (Nowak 1979). Thus, the species is an important part of the history and heritage of the United States. However, prior to reintroduction at ARNWR most U.S. citizens knew very little about red wolves. The opportunity to learn about free-ranging red wolves might have been forever lost if not for the ARNWR reintroduction project.

The reintroduction project allowed the USFWS to develop the red wolf into an effective "flagship" species for conservation. Quite honestly, the task was easy because wolves evoke strong emotions in people. Regardless of whether people are for or against wolf reintroduction, most are interested in the project. Thus, since 1986, the USFWS has been able to use the ARNWR red wolf project as a vehicle to present information not only about wolf restoration, but also about the plight of other endangered species and environmental issues.

The red wolf reintroduction program also portends the future for many species. As humankind continues to modify the landscape, animal and plant species will be squeezed into smaller and smaller islands of suitable habitat. Intensive management programs, like the one developed for red wolves in the refuge, will be necessary if many endangered species are to persist and evolve. The ARNWR project provides conservationists with the opportunity to study and begin to perfect the process of ecological restoration.

The annual budget for the ARNWR reintroduction project is about \$160,000.

Since most of this money is spent in northeastern North Carolina, the project provides monetary benefits to citizens of this area. However, in addition to generating direct monetary benefits, the reintroduction has generated a great deal of free publicity for Dare County (where ARNWR is located). Since 1986, a minimum of 22 magazines and 24 newspapers published stories about the project. Regional newspapers repeatedly covered the project. The project was discussed during the nightly newscasts of five national and four regional television networks; WVEC and WTKR, both based in Norfolk, VA, and both with access to very large markets, repeatedly covered the project. Three mini-documentaries were produced, including one by the Australian Broadcasting Company, and the red wolf was featured in the nationally broadcast "World of Audubon" documentary about restoration. Additionally, local radio stations presented information about the reintroduction. All stories about the ARNWR red wolf project depicted Dare County as an area that has escaped the trappings of the 20th century and whose natural resources are still healthy and thriving — the same image which local businesses and politicians portray in their advertising. Thus, the reintroduction project also indirectly benefits the local economy, since the fiscal health of the County depends almost solely on tourism.

Media coverage effectively informed millions of people about the reintroduction project. Thirty-three people became so committed to the concept of restoration that they donated approximately 10,000 ha to the project. In addition, many volunteers were utilized, most of whom were recent college graduates or students completing degrees in wildlife management. All volunteers received extensive training in red wolf restoration and eventually made significant contributions. The tremendous opportunities afforded young biologists in need of ex-

perience is one of the most striking examples of the project's value.

In addition to stimulating individual action, the reintroduction project prompted civic groups and private companies to become involved with conser-

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vation. For example, the North Banks Rotary Club (Kill Devil Hills, NC) developed a "conservation internship program" that consisted of a weekly stipend of \$50 to \$100 provided to individuals volunteering for the project. The program made a significant contribution to red wolf restoration, shielded the volunteer program from the vagaries of federal funding, and provided opportunities to people interested in conservation.

The red wolf reintroduction project also prompted the Conservation Fund (Washington, DC) to acquire approximately 47,000 ha of coastal plain habitat west of ARNWR. The acquisition will be managed as a conservation area by the USFWS and the North Carolina Wildlife Resources Commission. This additional acreage secures critical habitat for countless wildlife species in addition to red wolves, and provides significant protection to the Alligator River watershed and associated Albermarle-Pamlico estuarine system.

Evidence of Success

Since the ARNWR red wolf reintroduction was a first, there was no accepted definition of success against which to compare the project's progress. The technical proposal developed for the project defined success as the presence of second generation wild-born pups in the refuge (Parker 1986) — a definition developed mostly to provide USFWS officials a yardstick with which to meas-

ure the project's progress. Pups were born to free-ranging wolves during spring 1988. In fact, four pairs of wolves produced litters, of which pups from each are still alive (Phillips 1989). Producing and raising offspring in the wild is irrefu-

table evidence that red wolves can make the transition from dependency on humans for food to self-sufficiency. However, the presence of wild-born wolves is just one component of a successful program.

Another measure of success is the biological information

gained through associated research and monitoring of the project. The backbone of the project consists of radio-tracking released individuals to monitor the results of reintroduction efforts. To date, over 4,000 relocations have been recorded (U.S. Fish and Wildlife Service unpubl. data), providing information about red wolf home range characteristics, food habits, activity patterns, sociality, reproduction, and mortality. This information is available to interested individuals simply by contacting the refuge office. This increase in knowledge about red wolves and its accessibility to interested members of the public is another indicator of the program's success.

Although the first three years of the project presented some very difficult management situations, the monitoring program allowed the USFWS to stay only a few steps behind the problems. Since the first wolf was released, 17 animals had to be recaptured on 26 occasions. In spite of our preparedness, recaptures took place under conditions that were usually less than ideal. Nonetheless, recaptures were carried out without inflicting significant long-term damage to animals and with little inconvenience to residents of the area. Successfully managing the wolves helped to convince USFWS officials and local citizens that wolf restoration can be carried out in a controlled manner. This "track record" developed at ARNWR will be a tremendous aid to the

USFWS as it prepares and implements wolf restoration programs elsewhere.

On the other hand, 15 of the 29 released wolves died during the first three years of the project. To some, 50% mortality is unacceptable and evidence that the program is a failure. The USFWS feels, however, that 15 deaths are not excessive. In fact, the USFWS believes it is a measure of the program's success that all deaths were natural or accidental, and not the result of a citizen acting irresponsibly or on some unfounded hatred for wolves.

Assessing the value and success of an endangered species reintroduction program is not an easy task. For the ARNWR red wolf project,

measures of the value and success of the reintroduction are varied. Some are obvious and easily defined quantitatively, whereas others are subtle and not definable in monetary terms. Nonetheless, each measure of value and success provides justification and evidence of the manageability of this landmark restoration project upon which the very existence of a species may depend.

The values and successes of reintroduction projects often have the potential to extend beyond the immediate preservation of the reintroduced species, to positively affect local citizens and com-

munities, larger conservation efforts, and other imperiled species as well. Determination of the wide range of possible benefits and successes of a project may be useful in weighing the desirability of other captive breeding and reintroduction initiatives in the future.

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Female red wolf

Photo by M. Phillip