

Wisconsin Natural Areas Preservation Council

GUIDELINES

Augmentation or Development of Populations of Rare, Endangered and Threatened Plant and Animal Species

Introduction

The State Natural Areas (SNA) program was initiated to “preserve lands within the state that are representative of Wisconsin habitats prior to European settlement.” The need for the program arises from the fact that human activities in the past 175 years have caused major changes on the landscape. The changes include habitat loss, degradation and fragmentation, (e.g. less than 1% of Wisconsin’s presettlement prairies remain), introduction of ecologically invasive species that displace native flora and fauna, and climate change. These mainly human-induced changes have occurred at an unprecedented rate – comparable to a cataclysmic event. The results are native species threatened or in danger of extinction and a loss of the state’s biodiversity.

Many SNAs provide refuge for rare, threatened, and endangered species. A primary objective of SNAs is to preserve whole natural communities and their inherent processes. Augmenting or developing populations of plants and animals through outplanting* is not part of the natural order, and under most circumstances, should not be permitted on SNAs. However, especially for species that occur in rare habitats, SNAs may be the best or only remaining lands suitable for the long-term survival of a species.

*The term “outplanting” is considered here in the broad sense to include translocation, introduction, or reintroduction of plant or animal species to a site.

Rationale

SNAs have a dual role in conservation efforts, serving as benchmarks for our understanding of presettlement communities and natural processes, and also, as important reservoirs of the state’s biological diversity. At one time, relatively small sites were designated as SNAs, but with improved understanding of natural communities, an emphasis on landscape scale conservation has been adopted. Landscape scale SNAs protect biotic communities and preserve diversity by helping to overcome the challenges of natural or human disturbances, random local extinctions, habitat fragmentation, dispersal barriers, and other factors.

On national and state levels, work on endangered and threatened species has progressed sufficiently for the development of recovery and management plans. These plans often call for translocations or outplanting of propagated individuals into habitats deemed to be particularly suitable, in the hope that additional populations will be established. The objective is to maintain the genetic stock as well as increase the number of viable populations. In this way, the population base of a species may be increased beyond the level at which the species would be considered endangered.

- Some species are naturally rare due to specialized habitat requirements, a slower reproductive rate, or other limiting factors. The effects of human disturbance often push these species toward local extinction. Such rare, threatened, and endangered species may require various levels of short-term intervention to survive. Especially for species that occur in rare habitats, SNAs may be among the best remaining suitable lands available.



Wisconsin Natural Areas Preservation Council

GUIDELINES

- A clear demonstration that some external catastrophic event (e.g., flood, fire, plowing, pest infestation, etc.) occurred to severely reduce a population can also be a reason to attempt to augment the remaining individuals, particularly if the event resulted from human-caused disturbance. The intent is not to interfere with natural selection processes, but to preserve and enhance the resiliency of the natural communities that a SNA was created to protect.

Policy Considerations

Outplantings pose significant questions that are, at best, difficult to answer. For example, what is the minimum viable size of a population? That is: How many individuals are needed in a particular site to produce a viable population and what is the genetic make-up of the individuals? This last is a particularly important question when individuals are being used to supplement an existing population. Presumably, if the source stock is taken from a population and propagules or offspring are introduced back into the population, the genetic characteristics of the population will be maintained.

How close will the new population be located in reference to other populations? Is there a possibility for genetic incompatibility and out-breeding depression? Will introduction of a species introduce pathogens or alter the receiving ecosystem in any substantive way? In most cases, when organisms are outplanted, the event must be considered a new introduction rather than a reintroduction. Rarely do we have specific knowledge, especially for invertebrates, whether or not that species ever existed on a particular site.

These are just some of the issues that must be considered. Reasonable answers need to be provided before outplantings are attempted. Therefore, each request should be submitted in writing to the Department of Natural Resources – State Natural Areas Program to be considered on a case by case basis with advice from the Natural Areas Preservation Council as needed.

Guidelines

1. Location of outplanting

Outplantings should not be made in SNAs unless it can be positively demonstrated that there is an overall conservation priority that can only be addressed in this manner. Outplanting in other protected areas in the public trust such as state and county parks, public hunting and fishing grounds, and similar sites should also be explored.

Outplanting should be done only in habitats deemed appropriate based on analysis of the species' needs and occurrence. Reintroduction into areas where the species is known to have occurred in the past but from which it has been extirpated should have priority over outplanting in other presumably appropriate habitats.

2. Size of outplanting population

Outplantings must be of adequate size – outplanting a few individuals is generally not sufficient. The number depends in part upon the reproductive strategy and life history characteristics of the species in question. Estimates of the size of populations that have persisted, descriptions in the literature and



Wisconsin Natural Areas Preservation Council

GUIDELINES

observations of conditions for extant populations are pertinent.

3. Genetic stock to be used

The genetic make-up of the organisms should be investigated sufficiently so that different populations of the same species will not lose their genetic identity. Indiscriminate outplanting could result in use of stock not suitable for local conditions or in reduction in genetic diversity.

A few species, primarily plants, listed in the special concern, threatened, or endangered categories have been propagated commercially and the material widely distributed. Organisms resulting from commercial propagation are usually not appropriate for augmenting natural populations since the origin of the stock is often uncertain and some artificial selection may have occurred.

For rare species, collecting outplanting stock locally would help preserve local ecotypes. For the very rarest species, collecting more broadly would help preserve the gene pool.

4. Augmentation of populations

Augmentation of existing populations on SNAs should be limited to formal population enhancement programs by the Department of Natural Resources or approved experimental situations with a written recovery plan for the particular site. New individuals with a genetic make-up similar to the original population should be used, unless genetic outcrossing is specifically desired.

5. Provision for notification

Formal notification of approval by the Department of Natural Resources is required before outplanting. The required permits (DNR forms 1700-1 and 1700-2) must also be obtained for endangered and threatened species. This will provide a record for future reference and ensure adherence to policy standards. If feasible, voucher specimens or appropriate tissue samples of outplanted organisms should be placed in a state repository.

6. Monitoring survival and interactions

Monitoring of outplanted populations is absolutely essential. A long-term commitment based on a timeframe determined in consultation with SNA staff should be made prior to outplanting and such monitoring should be outlined in the proposed plan. Monitoring should include not only basic demographic studies of the population, but also observations of the relationships of the outplanted species to its' associates, potential competitors, and predators in the community. A follow up report should be submitted.

7. Proposals

Proposals to augment or develop populations of plants and animals on SNAs should include:

- a. Identification of the SNA, type(s) of natural community(s) involved, acres affected, and quality of the community. If possible, attach natural area management plan map with location marked where



Wisconsin Natural Areas Preservation Council

GUIDELINES

outplanting is proposed.

- b. Objective and rationale for the importance and need for the outplanting and the organism's scientific name, common name, and whether it is listed as an endangered/threatened species. Provide a summary of the known status (present, absent, formerly occurred but no longer present) and history of the organism at the proposed site.
- c. A plan detailing the methodology for outplanting, pertinent challenges that might impact success, implications for site management, and monitoring and reporting procedures.
- d. Person(s) in charge and qualifications.

Proposals should be submitted in writing to the Department of Natural Resources – State Natural Areas Program.

Adopted: November 1987
Revised: September 1999
Revised: November 2016



STATE OF WISCONSIN
Natural Areas Preservation Council
P.O. BOX 7921 · MADISON · WISCONSIN · 53707

