

CYPRIPEDIUM AND CONSERVATION PHILOSOPHY: A PRACTICAL AND PERSONAL PERSPECTIVE

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ABSTRACT. Activities are explored for the lay individual to impact positively on conservation of plant species. The following nine recommendations are made:

1. Under some conditions, increase of genetic diversity through introduction of foreign clones is appropriate.
2. Introduction into the wild can be useful to conservation, even if survivorship of the introductions is low.
3. Communication between government officials with information on areas slated for development and conservationists willing to salvage plants should be improved.
4. Collection of superior clones for development of 'improved' line-bred species can reduce incentive for collection in the wild by flooding market demands with more attractive material.
5. CITES should encourage salvage efforts and promote flow of rescued material.
6. Conservation requires a multilateral approach and should include individuals and commercial growers as well as botanical institutions. The conventional wisdom that arboreta and botanical gardens have much more commitment to conserving species than individuals is too often shattered by personnel changes and budgetary constraints.
7. Individuals can better work to help preserve orchid populations on a local level, an activity not possible through membership in most conservation organizations.
8. Rare and desirable plants should be rescued from habitat destruction even if they enter commercial markets.
9. Commercial growers can aid conservation efforts by filling market demands and by serving as information sources for possible illegal activity.

My philosophy and approach to conservation is primarily founded on what I can do to impact positively on maintenance of beneficial plant life. Though in situ habitat preservation is by far preferred mode of conservation, prevention of extinction in many cases will also require ex situ conservation efforts. My emphasis is plant life—primarily orchids. Also, my concern favors our own native species of orchids over those occurring elsewhere. For personal reasons these are my priorities set by the limits of time and personal finances.

Maintaining natural habitats is an unattainable goal for most individuals such as myself, and large tracts of land may be required to conserve a single species. National and international organizations exist for purchasing and maintaining land. However, my input as a member would be limited to providing financial support. As an individual I am concerned with land purchase and the commitment need to preserve it. Does the area include species of concern to me? Can commitment for protection be sustained? Will it be managed and if so how? How vulnerable are in-place conservation policies to changes in administration? What influence do I have in these habitats? I consider all these questions when providing my limited support to conservation organizations that purchase land with intent to preserve.

However, at the local and state level I can have considerably more impact. I can provide input on regional parks helping to guide development and maintenance of management policy. With permission of appropriate authorities, I can study population growth or decline of those species of concern to me as well as of causative factors affecting it. I can assist in pollination, providing more seed for dispersal. For rare plants such as the native orchids there may be times when the genetic material from populations outside the native area would be better adapted. In smaller populations, environmental shifts may occur requiring additional diversity in order for the species to adapt. I can help with transplant efforts, especially from areas under development. With permission of park authorities, I can assist with weeding, clearing of underbrush and/or thinning the overstory. Reintroduction of a species into areas where previously known is a possible activity. Many orchid species can be introduced into new areas successfully as adults but fail to produce future generations apparently owing to lack of mycorrhiza for seedling development or pollinators for seed set. However, even a low success rate would be beneficial to truly rare and endangered species. Other activities in which I can participate include caging plants to prevent herbivory by overabundant deer or rabbits, removal of un-

sential flower parts following pollination or removal of other flowers to reduce visibility by herbivores or collectors. I can also alert authorities concerning holes where plants may have been removed illegally, thus increasing vigilance by park officials. Clearly as an individual there is much that I can do to support and encourage conservation efforts locally without spending my disposable income.

One of the problems I encounter is the lack of communication by many state offices involved with conservation and/or environmental protection with other agencies and/or individuals concerning information on planned habitat destruction through development. Such development includes road widening as well as building. In some cases, rare plants may be moved to other sites despite possible low survivorship. Often, the plants are destroyed and no one capable of arranging for their prior removal is advised of the upcoming event. In some areas, removal is even prohibited resulting in considerable genetic waste. Plant rescue may be best provided by knowledgeable individuals, even commercial growers, who have the expertise to transplant with minimal mortality. Rescued plants that may end up on the commercial market should be no stumbling block to salvage. Is it not far better to have salvaged material to be made available commercially than to have destroyed genetic diversity? Is it not desirable to gain support from commercial growers by pointing them to sources in need of salvage? Commercial growers have the expertise and facilities to produce plants in large quantities fulfilling market demands thus reducing incentive for wild collection. They can also serve as sources for plant protection much in the same way as one-time poachers have become protectors for the alligator.

One other note needs to be made concerning commercial growers. Growers are primarily interested in providing a superior product in comparison to the bulk of wild material which may not sell well. Growers need to develop collections of superior clones as breeding stock for improved line breeding. They usually lack the opportunity to select from the wild and therefore must purchase large quantities of wild collected plants from which to select. Would not a better method of selection be for the grower or naturalist to enter habitats, especially those slated for development, and make the initial selections of superior clones rather than to purchase material that may have a questionable origin? Certainly line breeding superior strains aimed at satiating market demands is a useful conservation tool to

curb uncontrolled and illegal collecting in the wild.

Commercial growers are also bound up in the bureaucratic machinery when attempting to export artificially propagated mature plants under CITES. The necessary paperwork for assuring that each species and hybrid is artificially propagated as well as the ongoing inventorying of each species and hybrid is time consuming and costly. But, worse, when such permits are granted the process does not in any way assure that the material is not, in reality, wild collected. Furthermore the requirement to maintain three to five clones of each species indefinitely is unreasonable. Isn't something wrong when it is easier to collect from the wild and export CITES covered plants than to use artificially propagated material?

There is another encumbrance to mass production of plants listed as endangered in the United States. Under our laws no plant material of endangered species, not even seeds, can be removed for other than research purposes, and never for commercial propagation. Any removal of seed must be done by a research organization which usually lacks the expertise to germinate it, let alone develop mature plants from it.

On the international scene, plant salvage is essentially unknown. Habitats under development may already be destroyed by the time the necessary permits are granted, if they are granted at all. CITES should provide guidance and encouragement for salvage efforts in foreign countries including the development of efficient permitting processes where applicable.

Ex situ preservation outside natural environments is often envisioned as maintaining rare plants in arboretums, botanical gardens, wildlife preserves, etc. However, such organizations whose commitment waxes and wanes with the changes of administration or by financial crises have not developed sterling records. Many challenge the value of private collections as repositories for rare plants because of the relatively short life time of collectors, but such collections have the advantage of being curated by mission-committed collectors at no cost to the public. Furthermore these individuals can specialize, often developing techniques for maximizing growth of wild collected plants or seed. Utilizing the expertise of these individuals may lead to more successful methods for reestablishing or increasing populations. Many collectors are willing to provide their expertise, and occasionally propagated plants material. Since the goal of collectors is usually not financial, they focus on species which are often not found in general cultivation, and which are usually considered difficult to grow and to propagate. It is under the

hand of such individuals that many of the "insignificant" species, when extinct in the wild may be found. There is too often a rift between the 'expert' in institutions with good 'book' knowledge and the collector with practical knowledge. What we need is a multilateral approach to ex situ conservation; one that includes private individuals and their collections as well as the experts and their institutions.

Education is a valuable tool to conservation, but developing an appreciation of native species will also increase demand that should be filled with artificially propagated material. Certainly an educated public should not be discouraged from owning and growing rare plants if artificially propagated.

We must come to accept the fact that we lack the resources to save all plant species from extinction owing to habitat loss. Budgetary and time constraints will force us to set priorities on which species to preserve. Just how to determine those priorities is outside my expertise, but as an individual propagator I can continue my efforts as a provider of plants and can help maintain and hopefully increase the populations with which I work in the wild. It is essential that the conservation community work with collectors and growers, commercial or not, in order to utilize this untapped resource.

Habitat destruction is recognized as the greatest cause of extinction in the wild. Unless some-

thing is done to facilitate wild collection to aid ex situ conservation efforts, CITES may actually contribute to plant extinction. In this presentation, I have explored potential areas where individuals may be most effective in their conservation efforts. Each of us, whether as commercial growers, or as collectors has a great potential for assuring the continued existence of our world's botanical heritage without spending public funds.

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