Mojave Desert Native Plants for Revegetation Symposium and Workshop

Overview. This two-day conference was attended by over 250 land managers, natural resource specialists, land managers, private sector seed brokers and growers, and other individuals. On the first day, the attendees heard from invited speakers about the challenges posed by wildfire and invasive plants to natural ecosystems of the Mojave Desert; an integrated approach to address similar challenges in the Great Basin including a research program to develop adequate supplies of native plant materials for revegetation; and, reports on current projects from researchers and restoration specialists.

The second day was a workshop to develop a general strategy and action plan to further the development of an ecoregion-based approach to increasing the supply and successful use of native plants in the Mojave Desert. The outcome of the symposium and workshop is summarized below in five general categories, as follows:

- Priority Native Plant Species
- Facilities and Equipment
- Research and Development
- Seed Increase Strategies
- Organization

Priority Native Plant Species. Native plant materials are needed for a variety of revegetation uses. The greatest need is for fire rehabilitation; other uses include erosion control, mining and road reclamation, forage, and weed competition. Native species are particularly important for ecosystem restoration to support species of conservation concern such as the desert tortoise; other special uses include host plants for butterflies and other pollinator needs, indigenous uses, horticultural/low maintenance uses, riparian/wetland restoration, colonizers, rare plant recovery, and other wildlife purposes. Although there are a few isolated efforts to produce locally needed native plant materials (see Facilities and Equipment), there has been no organized effort to identify common needs among land management agencies and direct research on their propagation and cultivation requirements. In general, these species include grasses, and perennial and annual forbs. Most shrub seed is wildland collected and is likely to continue to be, at least for landscape-scale needs where propagation and use of transplants is impractical. To meet the demand for larger-scale uses, an interagency approach will likely need to focus on a select set of broadly-adapted species that satisfy particular needs. Smaller scale needs are likely best-addressed locally.

Facilities and Equipment. Support facilities needed for an ecoregion-based approach include greenhouses, shade houses, nurseries, and especially, common gardens. These are primarily needed for research on propagation and cultivation practices. The primary federal facility for this Mojave Desert is the Tucson Plant Materials Center, operated by the Natural Resources Conservation Service; the new Fallon Plant Materials Center can

also play an important role in testing plant materials, especially cool season plants. Numerous other small facilities exist at various locales, including Lake Mead National Recreation Area and Joshua Tree National Park; the University of Nevada , Community College of Southern Nevada, Victor Valley College, San Diego State University, and facilities operated by the Nevada Division of Forestry. It is likely that other university and tribal facilities also exist. Select private sector nurseries and seed industry may also be able to support research on needed plant species. Other specialized facilities, such as the Forest Service National Seed Lab, can also play an important research role.

Research and Development. Much research is needed in a wide variety of areas to support a native plant materials development program. Research needs fall into four general areas: species selection, propagation, cultivation, and use. Species selection, while influenced by particular needs, is constrained by such things as plant distribution and adaptability, life history, genetics, economics, and practical considerations including ease of cultivation. Once species have been chosen, propagation and cultivation techniques need to worked out. Propagation techniques can be developed by a wide variety of facilities, but research on cultivation practices is typically conducted through Plant Materials Centers, which then can transfer this technology to interested growers in the private sector. Research on successful use of native plant material includes a wide range of topics including seed zones, establishment under wildland conditions, competitive interactions with invasive plants, soil amendments and treatments. Other potential areas for research include soil biotic associations, seed viability and longevity, pollinator/insect interactions, prioritization criteria, reference conditions, and investigations into the whether and when active revegetation is needed.

Seed Increase Strategies. A comprehensive strategy for developing adequate supplies of native plant materials requires close integration with the private sector. As mentioned earlier, the cultural practices and best management practices developed in the research and development component can be transferred to growers for agricultural production of needed materials. Early integration of interested growers into the research program can facilitate this transfer, as well as provide a feedback loop from industry to researchers. This, in turn, can speed the process of developing adequate supplies and help preclude over-investment in research on plant materials that may not prove commercially viable. Because farming is inherently an economic risk, specific efforts to reduce the risk of adopting new techniques are likely to be needed. This could include buy-back and forward-contracting strategies that assure the grower of a market for his crop.

Organization. To ensure success, strategic long-term planning is needed. While the overall direction needs to be developed in close coordination with land managers and integrated into any existing infrastructure (such as, in Nevada, the Southern Nevada Restoration Team), this is also a critical need for a coordinator to oversee the integrated regional effort. Integration needs to occur among researchers, land management agencies, and the private sector, as well as with agencies with regulatory authority such as State and trade seed certification agencies.