

letters

To the Editor:

Park staff at Sequoia/Kings Canyon NPs (SEKI) recently confronted plans by the Denver Service Center to landscape the forthcoming Clover Creek visitor services development with plant materials acquired from outside the local area. In this particular case, SEKI has already developed the means to collect and grow-out local stocks for in-Park plantings, and intends to insist upon this procedure even if it yields a somewhat less finished-looking landscape.

My concern is that DSC, and NPS in general, appears to have no landscaping policy designed to protect genetic integrity in natural areas, and that park managers throughout the system may not be aware of the damage that can be perpetrated by indiscriminate plantings. I presume from local experience that use of alien plant materials has been standard for NPS landscaping work. Certainly the plantings around our Ash Mountain headquarters include many species not local to the area (e.g. coast live oak, eastern redbud, Japanese privet, etc.). A policy to prevent such planting is necessary for educational, ecological and scientific reasons. Let me briefly enumerate and explain these reasons:

1. Introduction of non-native species. Plants of species not local to the target area obviously produce an artificial landscape and mislead park visitors about the nature of local flora. Occasionally, particularly if the introduced species is native to a similar climate elsewhere, the introduction may self-propagate and become a weed, competing with native plants and displacing them. The classic example in these Parks (although preceding national park status) is the introduction of a Mediterranean annual grass flora in our foothills that has almost completely supplanted native grasses and forbs. Around Park Headquarters at Ash Mountain, NPS-introduced broom, pyracantha, toyon, and periwinkle have all become local weeds.

2. Introduction of foreign genotypes of native species. This takes place when native species are supplied by nurseries or other collectors or growers from stock originating outside the local area. Plants with broad geographic or climatic ranges typically show significant genetic variability from place to place (e.g. Clausen, Keck, and Hiesey's classic 1940 study on variability in some California species). Thus plant material supplied from outside the local area is, to some extent, genetically alien. This may simply mean the plants are not adapted to local conditions and fail to thrive or survive. But if they do survive, genetic introgression with local conspecifics is likely. While this may have little long-term ecological significance since natural selection will eventually remove less-fit phenotypes, it does have long-term scientific consequences. Plant population genetics research requires areas in which anthropogenic alterations in the distribution of species and genomes has not taken place, and in which natural ecological and evolutionary processes are relatively uncompromised. Virtually no such areas remain except for large natural-area national parks. Plant geneticists with whom I spoke at the 1982 MAB genetics symposium were emphatic in opposing use of alien genotypes in park plantings.

I can see no good reason why landscaping in national park natural areas should include foreign

plant material, except perhaps in the particular case of a native species that has become locally extinct and is re-introduced. On the other hand, the potential mischief in alien introductions is clear. I believe the logic developed here applies equally to animal species, although there may be circumstances in which small, isolated animal populations require artificial introductions of foreign genes from conspecifics to maintain genetic diversity.

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Park Science welcomes comments and/or criticism on the material expressed in all letters to the editor.