

# Pace Environmental Law Review

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Volume 6  
Issue 1 *Fall 1988*

Article 1

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September 1988

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### Recommended Citation

Faith Campbell, *Legal Protection of Plants in the United States*, 6 Pace Env'tl. L. Rev. 1 (1988)

DOI: <https://doi.org/10.58948/0738-6206.1382>

Available at: <https://digitalcommons.pace.edu/pelr/vol6/iss1/1>

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# Legal Protection of Plants in the United States

Faith Campbell\*

## I. Introduction

Unlike wild vertebrate animals, legal protection of plants in the United States is limited to "endangered" species. The law does not attempt to regulate exploitation of common plant species. This is partly due to the doctrine that plants belong to the landowner, whereas wild animals are common property. The reluctance to interfere with landowners' freedom pertains even in the case of endangered plant species; few if any of the federal or state laws hinder the private activities of the landowner. Only recently has this concept been applied positively by prohibiting collection or destruction of endangered plants on public lands, other than national and state parks.

This lack of protection is ironic since it was the concern about exploitation that led to the first effective legal protection for plants.<sup>1</sup> Fortunately, the primary federal statutes protecting animals emphasized habitat protection, this benefiting plants as well as animals.

Throughout its brief history, plant conservation has both suffered, and occasionally benefitted, from lack of attention. The penalties have been due to inadequate resources and an overburdened system. The benefits have arisen from the ef-

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1. Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere, Oct. 12, 1940, 56 Stat. 1354, T.I.A.S. No. 981. While the treaty was adopted earlier, it has never formed the basis for domestic legislation in the United States. The treaty's purpose was preservation of natural habitat representatives of all species and genera of their native flora and fauna, including migratory birds.

forts of determined individuals who introduced protective measures into legislation without generating political controversies.

In the United States, 2,500 to 3,000 plant species are considered to be in danger of extinction. For various ecological reasons, endangered plants are clustered in Hawaii, California, Texas, Oregon, Arizona, Florida and Puerto Rico. In many of these areas, rapid economic growth is compounding the threat. Tens of thousands of plant species in other countries, primarily in the tropics, are considered to be in danger of extinction. For reasons which will be explored further, only seven percent of the American species now enjoy protection under United States federal law.

## II. Legal Protective Measures

### A. CITES

The effort to conserve endangered plant species in the United States began with the negotiation and adoption of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).<sup>2</sup> CITES is the only global treaty that explicitly protects plants. The belief in the necessity for an international treaty to control wildlife exploitation arose out of a meeting of wildlife department heads from the newly independent African states.<sup>3</sup> The wildlife directors found that they were unable to curb poaching as long as the demand for live wildlife and wildlife products in Europe and the United States remained strong.

At least seven drafts of CITES were written before the final negotiations in 1973.<sup>4</sup> It was not until these final negotia-

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2. Convention on International Trade in Endangered Species of Wild Fauna and Flora, July 1, 1975, 27 U.S.T. 1087, T.I.A.S. No. 8249 [hereinafter CITES].

3. CAMPBELL, *Cactus and Succulent Conservation in Action: The Politics of Plant Conservation*, in *CONSERVATION AND COMMERCE OF CACTI AND OTHER SUCCULENTS* 245 (D. Fuller & S. Fitzgerald ed. 1987). This meeting of the wildlife department heads from the newly independent African states was held at Arusha, Tanganyika, in 1961.

4. *Id.* at 245-46. This was further supported by an interview with Dr. Lee Talbot, Consultant with the Council of Sports Fisheries and Wildlife, in Washington, D.C. (Aug. 23, 1984).

tions, however, that the treatment of plants was resolved. Controversy focused on whether to extend treaty controls to cultivated or propagated plants belonging to species of wild origin and to seeds.<sup>5</sup> U.S. officials were divided over the issues. The draft U.S. position paper for the final negotiating conference called for inclusion of seeds but excluded cultivated plants.<sup>6</sup>

During the final treaty negotiations, Committee II, responsible for determining how plants were to be treated under CITES, advocated exclusion of propagated plants and herbarium specimens.<sup>7</sup> However, some negotiation leaders did not want any substantive differences between the treatment of plants and the treatment of animals, and feared that the exclusion of cultivated plants would become a precedent to the exclusion of captive-bred animals.<sup>8</sup> The Committee may also have recognized that exclusion of propagated plants would greatly complicate enforcement.<sup>9</sup> The negotiators prevailed

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5. *Id.*

6. H. HEYMANN, PLENIPOTENTIARY CONFERENCE TO CONCLUDE AN INTERNATIONAL CONVENTION ON TRADE IN CERTAIN SPECIES OF WILDLIFE (1972) (U.S. Department of State Memorandum) (available in the files of the Office of Management Authority, U.S. Fish & Wildlife Service).

7. Interview with Dr. F. Raymond Fosberg, Botanist, Smithsonian Institution, in Washington, D.C. (Sept. 15, 1984).

The committee structure was created to facilitate the efforts to achieve a working treaty. The Committee II advocated the exclusion of propagated (cultivated) plants and herbarium (herb) specimens.

Committee II (Flora) assumed responsibility for sorting out the treatment of plants under the treaty and determining which species to place in which appendix, the appendices being broken up according to flora and fauna. The Committee members included William Hartley of Australia, George Argus of Canada, Grenville Lucas of United Kingdom, Ruggere Tomaselli of Italy, Thomas Elias and F. Raymond Fosberg of the U.S., Douglas Hey of South Africa, Gunnar Seidenfaden of Denmark, a representative of West Germany, and others.

There was disagreement over the Committee's task. Some thought that it was merely to draw up lists of species that should be protected, while the botanists on the Committee clearly believed that they should also seek to influence the text of the treaty to ensure that it conformed to their views on plant conservation. CAMPBELL, *supra* note 3, at 247.

8. Interview with Earl Baysinger, retired, formerly Chief of the Federal Wildlife Reserve Office, U.S. Fish and Wildlife Service, in Washington, D.C. (Aug. 19, 1984).

9. *Id.* Traditional riparian landowner's rights complicated the ability of the negotiators to regulate the taking of plants on private property. The regulation of propo-

upon Committee II to change its report and to delete references to these issues.<sup>10</sup>

CITES was subsequently signed in March, 1973.<sup>11</sup> It came into effect in 1975 upon ratification by ten countries.<sup>12</sup> There are now approximately one hundred parties to the treaty.<sup>13</sup>

Propagated plants and captive-bred wildlife are covered by CITES under more flexible permit requirements.<sup>14</sup> Under a system established by Article VII, non-commercial herbarium exchanges between registered institutions are exempted, as are museum exchanges.<sup>15</sup>

## B. *CITES Appendices*

The CITES appendices, which list all plants protected under CITES, now include about 40,000 species of plants, the majority being orchids.<sup>16</sup> In 1986, the U.S. imported at least 4.5 million plants belonging to these protected species. Ninety percent were probably propagated, but an alarmingly large proportion of certain groups were collected from the wild.

Appendix I of CITES contains those species now believed to be threatened with extinction.<sup>17</sup> Only non-commercial trade in wild plants of these species is allowed, usually for research or propagation that will benefit the species' survival in the wild.<sup>18</sup> To ensure strict control, both the importing and exporting countries must issue a permit before the shipment may occur.<sup>19</sup> Appendix I now includes ten tropical orchids, forty U.S. and Mexican cacti, fourteen other succulents, and

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gated plants on private property appeared in direct contradiction to traditional raparian landowner's right to do with their land what they wish. *Id.*

10. *Id.*

11. CITES, *supra* note 2.

12. *Id.* at art. XXII.

13. CITES, *opened for signature* Mar. 3, 1973, 27 U.S.T. 1346, T.I.A.S. No. 8249.

14. CITES, *supra* note 2, at art. VII.

15. *Id.* The CITES provisions allow for exchanges of restricted plants across state and international borders for medicinal and scientific reasons in a controlled manner. *Id.*

16. CITES, *supra* note 2, at 1119-43; 50 C.F.R. § 23.23, sub part C (1988).

17. *Id.*

18. *Id.* at art. III.

19. *Id.*

about fifty cycads.<sup>20</sup>

Appendix II lists species that are not necessarily threatened at present, but may become so if trade is not adequately regulated.<sup>21</sup> Exporting countries may issue permits allowing commercial trade, but only after determining that the trade will not harm wild populations.<sup>22</sup> Appendix II refers to all species in the following groups that are not listed on the more protective Appendix I: orchids, cacti, cycads, aloes, and *Pachypodium*.<sup>23</sup> In addition, it includes, among others, several other succulent genera, *Cyclamen*, and several species of palms.<sup>24</sup>

Some heavily-traded plant groups are used for purposes other than horticulture: tree ferns as growing medium for orchids, trees for timber, and ginseng for tea. Some of these groups are not yet listed in the CITES appendices, and include various timber species, bulbs from the Mediterranean and other regions, bromeliads, "medicinals," and the Venus fly-trap.

### C. U.S. Endangered Species Act

CITES stimulated a thorough revision of American endangered species legislation, including extension of its broadened protections to the plant kingdom.<sup>25</sup> It is probable that the Endangered Species Act of 1973 (ESA)<sup>26</sup> would not have included plants at all if not for CITES. The staff of the Bureau of Sports Fisheries and Wildlife opposed the inclusion of plants under the Act.<sup>27</sup> More importantly, the Department of Agriculture did not want responsibility for regulating trade.<sup>28</sup>

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20. 50 Fed. Reg. 39,526 (1985) (to be codified at 50 C.F.R. pt. 17) [hereinafter Appendix I].

21. CITES, *supra* note 2, at art. IV.

22. *Id.*

23. See *supra* note 16 and accompanying text.

24. *Id.*

25. BAYSINGER, *supra* note 8.

26. Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543 (1982 & Supp. IV 1986).

27. Interview with Dr. Lee Talbot, Consultant, Council of Sports Fisheries and Wildlife, in Washington, D.C. (Aug. 23, 1984).

28. *Id.*

While some conservation organizations such as the National Parks and Conservation Association, Friends of the Earth, Defenders of Wildlife, and Sierra Club supported protection of plant species with increasing enthusiasm, the National Wildlife Federation said it could find little reason for inclusion of flora as a protected resource.

Members of Congress were in a quandry over whether the federal or state governments should regulate domestic trade. It was feared that a blunt prohibition of "taking" would stir opposition if it were seen as a form of federal land-use control, especially since landowners are considered to own plants.<sup>29</sup> Therefore, the House Committee on Merchant Marine and Fisheries adopted a bill providing for habitat acquisition for CITES-listed plant species, regulation of importation and exportation of CITES-listed plant species, and assistance to foreign governments working to conserve plants.<sup>30</sup> Other issues, including regulation of interstate trade, were referred to the Smithsonian Institution for study. Regulation of imports and exports was assigned to the Department of Agriculture, which was believed to have adequate authority and enforcement mechanisms.<sup>31</sup>

In the Senate, opposition by Senator Ted Stevens led to removal of all references to flora except the call for a study by the Smithsonian.<sup>32</sup> During floor debate, at the request of the Smithsonian, the bill was amended to transfer responsibility for the study to the Department of Agriculture.<sup>33</sup>

Fortunately, the issue of protecting plants maintained a sufficiently low profile so that the efforts of a few determined individuals could turn the situation around. Due to their concern about implementing CITES, and encouraged by Dr. Lee Talbot of the Council on Environmental Quality, Earl Baysinger of the Bureau of Sports Fisheries and Wildlife, and bot-

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29. Interview with E. Curtis Bohlen, of the World Wildlife Fund/Conservation Foundation, in Washington, D.C. (August 9, 1984) [hereinafter Bohlen]. "Taking," in this sense, refers to the collection of plants from their native soil.

30. H.R. REP. NO. 412, 93rd Cong., 1st Sess. 1-2 (1973).

31. S. REP. NO. 37, 93rd Cong., 1st Sess. 1 (1973).

32. 119 CONG. REC. S25,663-68 (1973).

33. *Id.*

anists from the Smithsonian Institution, members of Congress forced inclusion of plants over official administration objections.<sup>34</sup> In response to informal consultations between House Subcommittee counsel Frank Potter, and Interior Department officials, Bohlen and Baysinger,<sup>35</sup> the House-Senate conference altered the bill to give endangered plants almost the same protection as endangered animals. The Endangered Species Act, adopted in December 1973, provided for the listing of endangered or threatened species or subspecies of plants,<sup>36</sup> and prohibited interstate commerce in and the import and export of endangered plants.<sup>37</sup> In order to avoid raising the issue of federal versus state jurisdiction and becoming entangled in issues of landowners' property rights,<sup>38</sup> the Endangered Species Act authorized the Fish and Wildlife Service to enforce interstate trade regulations and gave the Agriculture Department jurisdiction over exports and imports.<sup>39</sup>

A report on flora written by the Smithsonian Institution was submitted in January 1975, and consisted primarily of a list of species believed to be threatened. The report became the foundation for the Fish and Wildlife Service's "candidates" listing, and was first published in June 1976.<sup>40</sup> As of 1985, approximately 2,500 species and subspecies of plants were under study for protection as endangered or threatened species.<sup>41</sup>

In 1982, Congress amended the Endangered Species Act to prohibit collection of endangered plants from federal lands.<sup>42</sup> The Fish and Wildlife Service issued implementing

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34. See generally CAMPBELL, *supra* note 3.

35. Bohlen, *supra* note 29.

36. 16 U.S.C. § 1533 (1982 & Supp. IV 1986). This listing does not provide for geographically separate populations, as may be done for vertebrate animals.

37. *Id.* at § 1538(d).

38. *Id.* at § 1538(a). The law does not prohibit the "taking" of listed plant species. Thus, landowners were free to remove or destroy plants normally protected under the Endangered Species Act. *Id.*

39. *Id.* at § 1540(e). This section provides for the Secretary to authorize other agencies to enforce the Act pursuant to 50 C.F.R. § 10.1 (1987).

40. Appendix I, *supra* note 20.

41. *Id.*

42. 16 U.S.C. § 1538(a)(2) (1982 & Supp. IV 1986).



regulations for the new provision in September, 1985. Amendments, passed in October 1988, outlaw deliberate destruction of listed plants on federal lands and prohibit collection from non-federal lands in violation of any state law or regulation, including criminal trespass law.

#### D. *Lacey Act*

The Lacey Act,<sup>43</sup> first enacted in 1900,<sup>44</sup> makes it a federal crime to transport across state lines, to import, or to export wildlife taken contrary to the law of the state or country of origin.<sup>45</sup> Under the 1981 amendments, it is now a federal crime to transport across state lines or to export specimens of native plant species collected contrary to a state endangered species law or species that are listed in the CITES appendices and protected by other state legislation.<sup>46</sup> Congress intended the statute to supplement the Arizona<sup>47</sup> and California<sup>48</sup> laws regulating the collection of desert plants.

#### E. *State Laws*

According to Linda McMahan of the Center for Plant Conservation, thirty states have enacted laws or regulations aimed at protecting plant species.<sup>49</sup> Most of this legislation protects endangered species, however, some laws regulate trade in species selected on grounds other than a scientific assessment of their rarity. Arizona, Minnesota, Idaho, and New York are among those states in the latter category.<sup>50</sup>

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43. 16 U.S.C. §§ 3371-3378 (1982 & Supp. IV 1986).

44. M. BEAN, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 106 (1983).

45. 16 U.S.C. §§ 3371-3378 (1982 & Supp. IV 1986).

46. *Id.*

47. ARIZ. REV. STAT. ANN. § 3-901 (1974). Many native Arizona plants are listed and the Act grants the Arizona Commission of Agriculture and Horticulture the power to increase or decrease the list, as well as grant permits.

48. CAL. FISH & GAME CODE § 1925 (West 1984 & Supp. 1988). The statute provides for the Department of Fish and Game to enforce the provisions of the California Desert Native Plant Act.

49. CENTER FOR PLANT CONSERVATION, 1988 PLANT CONSERVATION RESOURCE BOOK (1988) [hereinafter CONSERVATION RESOURCE BOOK].

50. *Id.* Plants selected by the states are chosen under different criteria. Usually selection is based on an awareness that the proposed plant could be subject to com-

Many of the wildflower species in trade are protected by law in some states. In general, these laws regulate commercial trade and collection without the permission of the landowner. As noted, these laws are supplemented by the Lacey Act.<sup>51</sup>

### III. Legal Deficiencies

#### A. *Inadequate Protection of Native Plants*

Legal protection for plants remains inadequate. This is particularly true for species sought by the horticultural and "medicinal" markets — a surprisingly varied group of plant species. Although increasingly available from propagation, listed species of cacti and carnivorous plants have been collected in the past, and may still be. The Tennessee coneflower and Virginia round-leaf birch are sold as propagated plants; the round-leaf birch earlier suffered from propagators taking too many cuttings. Obtaining any orchid might be profitable for "diggers." Other species are sought by some collectors just because they are rare.

The Endangered Species Act only prohibits collection from federal lands,<sup>52</sup> and requires a permit for transporting propagated plants in interstate commerce.<sup>53</sup> The pending amendments, while they may help to better protect plants, still fall short of the protections granted to listed animal species.<sup>54</sup> Twenty states with vulnerable plants still have no plant protection statutes.<sup>55</sup> Furthermore, a private landowner may still destroy listed plants with impunity.

Even if the existing federal laws and the enforcement of those laws were improved, there is still no regulation of the major trade of species: those species which are not yet endangered, but which are collected by tens of thousands for the horticultural and "medicinal" markets. This collection pres-

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mercial exploitation. Plants that are valuable for commercial enterprises are protected in an effort to deter harvesting.

51. 16 U.S.C. § 3371-3378 (1982 & Supp. IV 1986).

52. *Id.* at § 1532(a)(2)(B).

53. *Id.* at § 1539(a).

54. *Id.* at § 1538(a).

55. CONSERVATION RESOURCE BOOK, *supra* note 49.

sure and trading should be regulated for the same reasons and in the same way as is the "harvesting" of ducks or freshwater fish — to prevent a depletion of species.

A catalog survey in 1986 revealed that at least fifty nurseries offer a total of nearly 600 North American wildflower species through mail-order catalogs.<sup>56</sup> Many other plants are sold by retail nurseries and garden centers. It is probable that several hundred thousand plants of the most popular species are sold each year through these various mechanisms. According to records examined by law enforcement officials in the 1970s, one Michigan couple supplied up to 100,000 ladyslipper orchids per year to retailers — all wild-dug in the area. The trade in collected seeds, primarily of prairie species, could reach the millions. A preliminary survey of herbalists has documented sales of over one hundred native species by these dealers.<sup>57</sup>

Some of the most popular species are nearly always collected from the wild, rather than propagated. Included are the pink ladyslipper orchid, large white-flowered trillium, jack-in-the-pulpit, Dutchmen's breeches, crested iris, and bloodroot. However, some of these species are propagated by specialized nurseries.

### B. *Introduction of Non-Native Plants*

Federal laws do not discourage the spread of invasive, weedy plants into new environments where they may cause severe disruption. Commercial mixes of wildflower seed often contain species native to Europe, such as the purple loosestrife, which already threaten to destroy certain ecosystems. Some mixes contain species native to other parts of the United States; plants which could become weeds if introduced outside their native ranges.

President Carter issued Executive Order 11,987 in 1977, instructing executive agencies to limit the introduction of ex-

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56. The 1986 *Catalog Survey* is available from the Natural Resource Defense Council, 1350 New York Ave., N.W. Washington, D.C. 20005.

57. CONSERVATION RESOURCE BOOK, *supra* note 49.

otic species.<sup>58</sup> Unfortunately, it has never been enforced. Some states try to control such introductions by including exotic species under their "noxious weed" laws.<sup>59</sup> The need to control introductions is increasingly appreciated by many state agricultural and other officials.

#### IV. Problems Plague Enforcement

##### A. *Overburdening and Indecisiveness of Agencies*

Enforcement of existing laws falls short of accomplishing the laws' stated objectives with respect to plants. There are several explanations for this. The first, is the low level of general public concern about plants and the consequent lack of pressure to conserve them. A second is that responsibility for enforcement has fallen to agencies which lack commitment to either the plant kingdom (U.S. Fish and Wildlife Service) or conservation (U.S. Department of Agriculture (USDA)). Furthermore, USDA is not accustomed to policing plant protection. A third reason is that, since 1973, these agencies have been under almost continuous pressure to reduce staff and funds, despite their expanding responsibilities.<sup>60</sup>

The most conspicuous problem is the long delay in listing additional species which need the protection of the Act. There are currently 182 U.S. plant species listed as endangered or threatened.<sup>61</sup> Another 2,500 plant species are awaiting listing.<sup>62</sup> Of these, about 950 are known to qualify for protection, but their listing has been prevented by understaffing. Under the current practice of listing species one by one, listing these "Category 1" candidates within ten years would probably require a doubling of the current 1988 annual appropriation of

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58. Exec. Order No. 11,987, 42 Fed. Reg. 26,949 (1977).

59. An example of this is Arizona's noxious weed laws. ARIZ. REV. STAT. ANN. § 3-301 (1974).

60. For more information about funding constraints, see CAMPBELL, *The Appropriations History of the 1973 Endangered Species Act*, 5 ENDANGERED SPECIES UPDATE 10 (1988).

61. U.S. FISH & WILDLIFE SERV., XIII ENDANGERED SPECIES TECHNICAL BULLETIN, Nos. 6,7, 8 (June-July 1988).

62. Appendix I, *supra* note 20.

\$3.2 million.<sup>63</sup> Carrying out status surveys on the 2,900 "Category 2" candidates within ten years would require an additional appropriation of \$1.6 to \$1.75 million per year.<sup>64</sup>

One remedy to the listing problem would be listing candidate species in clusters rather than singly. For example, in Hawaii, listing entire genera could be done. However, for this to occur the Fish and Wildlife Service (FWS) must overcome its current antipathy to listing. This antipathy results from the FWS' desire to avoid what it perceives as politically controversial actions. These roadblocks appear to be worse in some FWS regions than others.

Region One of the FWS is responsible for well over half of all the candidate species.<sup>65</sup> Unfortunately, due to the large number of candidates, the Region moves very slowly on listing. Since January 1987, Region One has listed only thirteen species, six of them plants.<sup>66</sup> The FWS in this region has proposed listing ten additional species, only one of which is a plant.<sup>67</sup> Despite the extinction crisis in Hawaii,<sup>68</sup> no Hawaiian species were listed in 1987 and none are under consideration for 1988.

By contrast, Region Four in the Southeast continues to list species.<sup>69</sup> Since January 1987, Region Four has issued nineteen proposals to list a species and completed the listing of forty-six species, including ten Puerto Rican plants and an-

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63. CAMPBELL, *supra* note 60. "Category 1" candidates are those species that the Fish and Wildlife Service has determined require protection.

64. *Id.* "Category 2" candidates are those species that the Fish and Wildlife Service has determined do not require protection. These plants require further study before possibly becoming "Category 1" candidates.

65. For a discussion on regional listing pace see K. KING, F. CAMPBELL, D. EDELSON, & S. MILLER, *EXTINCTION IN PARADISE: PROTECTING OUR HAWAIIAN SPECIES* 49 (1989) [hereinafter *EXTINCTION IN PARADISE*]. Region One includes Hawaii, California, Washington, Idaho, Nevada and Oregon. The country is divided into regions for more effective administration of the conservation efforts.

66. *See supra* note 49.

67. *Id.*

68. Appendix I, *supra* note 20. Forty percent of the Islands' plant species are either listed or "candidates" for listing; about one-quarter of the as-yet-unlisted plant species are believed to be extinct in the wild.

69. *EXTINCTION IN PARADISE*, *supra* note 65. Region Four consists of the states from North Carolina to Louisiana, including Puerto Rico.

imals.<sup>70</sup> Twenty-nine of the listed species were plants.<sup>71</sup> Region Four has also proposed the delisting of nineteen species.

Funding for projects to promote the survival of species already listed as endangered has increased for all relevant agencies, but not fast enough to keep up with the need. Consequently, recovery plans have been completed for only sixty percent of U.S. species, including about forty-four percent of listed plants.<sup>72</sup> Implementation of these plans has also lagged. Efforts called for in many of the plans are not being undertaken. The Senate bill to reauthorize the Endangered Species Act includes language intended to correct FWS's neglect of recovery efforts for plants and lower animals.<sup>73</sup>

Under section 7 of the Endangered Species Act, all federal agencies must consult with either the FWS or the National Marine Fisheries Service (NMFS) for marine species if they wish to fund or approve an action which may affect an endangered or threatened species or modify their critical habitats.<sup>74</sup> In order for such consultations to proceed promptly and still be sufficiently thorough to ensure protection, the FWS and NMFS must have an adequate staff to respond to the agencies' contacts. Defenders of Wildlife have pointed out that while the number of consultations begun each year is now about five times the number begun in 1979, the funds appropriated to FWS for this purpose are lower in real dollars.<sup>75</sup> The result is hurried consultations which often overlook potential impacts.

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70. See *supra* note 55 and accompanying text.

71. *Id.*

72. R. Cook & P. Dixon, A Review of Recovery Plans for Threatened and Endangered Plant Species (March 1988) (unpublished report) (available from the World Wildlife Fund, Project no. 493).

73. H.R. Res. 1467, 100th Cong., 2d Sess., 132 CONG. REC. S10174 (1988) (amending 16 § U.S.C. 1553(f) (1982 & Supp. IV 1986)).

74. H.R. No. 412, *supra* note 3130, at § 7.

75. *Endangered Species Act Authorizations: Hearings on S.725 Before the Subcomm. on Envtl. Pollution of the Comm. on Env't and Public Works*, 99th Cong., 1st Sess. 186 (1985) (statement by Michael Bean).

### B. *Lack of Plant Refuges*

No wildlife refuges have been acquired for plants. Funding was appropriated for a refuge in Puerto Rico, but its acquisition was blocked by local opposition. Two refuges, Antioch Dunes (California) and Ash Meadows (Nevada), harbor endangered plants and were acquired, at least in part, in an effort to protect these plants. It is unlikely that many refuges will be established for plant species if listed animals are not also present.

Inclusion within a refuge may not guarantee protection, particularly in areas where there is an imminent threat to exotic species or other difficult-to-control factors. The Hakalau Forest National Wildlife Refuge in Hawaii was purchased primarily to provide habitat for several endangered bird species, but it also includes several endangered plant species, such as the Hawaiian vetch. Despite sizable funding increases for refuge operations during the Reagan Administration,<sup>76</sup> funding for Hawaiian refuges remains inadequate to ensure their protection.<sup>77</sup> If these management needs are not addressed promptly, Hakalau refuge will lose its value as a bird habitat and the \$16.7 million spent to acquire the land will have been wasted. Two additional forest refuges are scheduled for acquisition in Hawaii;<sup>78</sup> they will have similar resource management problems and funding and staffing needs.

Funding for section 6 of the Endangered Species Act, under which the states are encouraged to protect federally-listed species,<sup>79</sup> has also failed to keep pace with the increase in either the number of species listed or the number of cooperative agreements signed. The current appropriation of \$4.3 million is about a quarter of the level needed to fund each

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76. CAMPBELL, *supra* note 60.

77. *Id.* The refuge has a budget of only \$170,000 for Fiscal Year 1988 (FY1988), including a \$30,000 Congressional add-on. However, FWS's own data indicate that it needs close to \$3 million in order to fence the refuge, eliminate pigs and cattle, control invading alien plants, and restore the native forest.

78. *Id.* These forests are the Keauhou Ranch-Kilavea Forest on Hawaii and a forest on Oahu.

79. 16 U.S.C. § 1535 (1982 & Supp. IV 1986).

agreement at 1977 levels of \$200,000.<sup>80</sup> This is without regard to the increased number of species or higher costs due to inflation. Thirty-six states have section 6 agreements for plants.<sup>81</sup>

The major federal land-managing agencies — the Forest Service and the Bureau of Land Management (BLM) — have a legal obligation under section 7 of the Endangered Species Act to utilize their programs to promote recovery of listed species on their lands.<sup>82</sup> Approximately forty listed plant species and large numbers of candidate plant species are found on each of these agencies' lands. These agencies must strive to either halt or reverse the decline of these species. To accomplish this, the primary need is to place adequate numbers of biologists in the offices where land-use decisions are made.<sup>83</sup> However, such an expansion, even though worthwhile, runs counter to recent trends of reducing agency budgets and personnel ceilings. Once the biologists are in place, they must be given sufficient authority to curtail land uses that are harmful to listed or candidate species. Additional funds are needed to erect and maintain fences and signs protecting fragile areas and to patrol areas subject to vandalism.

### C. *Fiscal Problems*

The Forest Service spent \$4.9 million for endangered species conservation in Fiscal Year (FY) 1988;<sup>84</sup> of this amount, \$400,000 was earmarked by Congress for plants because Congress believed that the Service would otherwise continue to ignore that kingdom.<sup>85</sup> In FY 1989, these appropriations will increase to \$7.2 million for endangered species,<sup>86</sup> of which \$600,000 would be for plants. As of 1987, the Forest Service had fewer than sixty botanists among its nearly 900 wildlife

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80. CAMPBELL, *supra* note 60.

81. *Id.* These agreements are intended to facilitate protection of plants through efforts at the state and federal level simultaneously.

82. 16 U.S.C. § 1536(a) (1982 & Supp. IV 1986).

83. These decisions are made at either the national forest or BLM District office.

84. CAMPBELL, *supra* note 60.

85. *Id.*

86. S. REP. No. 410, 100th Cong., 2d Sess. 78 (1988).



biologists.<sup>87</sup> The BLM received an appropriation of \$4.3 million for endangered species in FY 1988;<sup>88</sup> in FY 1989 it will be \$5 million.<sup>89</sup> The Bureau has almost 200 wildlife biologists, and yet less than ten are specialized in the area of botany.<sup>90</sup>

It is more difficult to assess the National Park Service's [NPS's] funding needs to conserve endangered species because its resource budget is compiled by individual park units.<sup>91</sup> Endangered species in the national parks are protected from many of the pressures found on the "multiple-use" lands. However, under certain circumstances, habitats must be managed to ensure the suitability for species' survival. This is especially true on islands to which exotic species, especially mammals, have been introduced. These animals can devastate the native flora that has evolved in isolation. Serious management problems have resulted in national parks in Hawaii and on California's Channel Islands, to name two examples. Four national parks in Hawaii include examples of seventy-six native natural communities (fourty-two of all the communities recognized by the Nature Conservancy of Hawaii);<sup>92</sup> twenty-five are believed to be protected only in national parks.<sup>93</sup> Unfortunately, the National Park Service has not provided adequate staff and funds to carry out programs effectively to conserve Hawaii's endangered species and their ecosystems.<sup>94</sup>

In Haleakala National Park, the Kipahulu District was acquired in 1969 because of its biological resources and relatively pristine condition. However, invasion since then by feral pigs and goats now threatens destruction of the area, which is extremely rich botanically. Hawaii Volcanoes Na-

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87. U.S. Forest Serv., Div. of Wildlife & Fisheries, presented to author in Jan. 1987.

88. CAMPBELL, *supra* note 60.

89. S. REP. NO. 410, *supra* note 86, at § 8.

90. Material presented to author by the Bureau of Land Management, Div. of Wildlife & Fisheries, Washington D.C. (Feb. 1988).

91. S. REP. NO. 410, *supra* note 86.

92. HAWAII HERITAGE PROGRAM, THE NAURAL CONSERVANCY OF HAWAII, BIOLOGICAL OVERVIEW OF HAWAII'S NATURAL AREA RESERVES SYSTEM 20-21 (1987).

93. *Id.*

94. CAMPBELL, *supra* note 60.

tional Park has advanced further in ungulate control.<sup>95</sup> However, it is threatened by exotic, alien plants, which are smothering native vegetation. Of the approximately 475 exotic plant species growing in the Hawaii Volcanoes National Park, over forty species are capable of growing at disruptively high densities or of forming monotypic infestations.<sup>96</sup> Even at lower densities, some non-native plants degrade native ecosystems by changing nutrient cycling and soil-water regimes. As plant composition shifts, native ecosystems are replaced by exotic ecosystems. Even maintaining existing native plant communities requires resources considerably beyond present staffing and funding levels.

Responding to a request from the Natural Resources Defense Council, Congress added \$250,000 for each park's resource management program in both FY 1988 and FY 1989.<sup>97</sup> These additional funds fall short of the need. Haleakala needs about \$700,000 per year to carry out its resource management plan, about four times the amount requested by the Administration for FY 1989. Hawaii Volcanos needs about \$900,000 per year — three times the amount requested.<sup>98</sup>

Kalaupapa National Historical Park on Molokai supports intact examples of native natural communities which are similarly threatened by ungulates and plants. Needed research, fence construction, and control efforts would cost about \$2.5 million per year initially.<sup>99</sup> To date, neither the NPS nor conservation organizations have lobbied for these funds.

In addition, the NPS should fund research to develop a new understanding of ecological processes threatening the parks and new control techniques, especially biological controls for invasive plants. Haleakala and Hawaii Volcanos each

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95. Ungulated control refers to the killing of ungulates (hoofed animals). In this case, reference is made primarily to pigs in the forest, and goats at higher elevations.

96. NATIONAL PARK SERV., HAWAII VOLCANOES NATIONAL PARK, NATURAL RESOURCES MANAGEMENT PLAN & ENVIRONMENTAL ASSESSMENT 12 (rev. Jan. 1988).

97. H.R. REP. No. 862, 100th Cong., 2d Sess. (to accompany H.R. 4867 at 18) (1988).

98. Interview with Dan Taylor, member of the National Park Serv., in Hawaii (Aug. 1988).

99. Interview with Clifford Smith, member of the Cooperative Parks Resources Studies Unit, Univ. of Hawaii at Manoa, in Washington, D.C. (Aug. 2, 1988).

need \$250,000 per year for on-the-ground research; biological control techniques require a similar figure per targeted species.<sup>100</sup>

#### D. *Effect on Enforcement*

##### 1. *Funding*

Funding constraints impede law enforcement as well as other aspects of plant protection. The FWS' Office of Management Authority (OMA) issues the permits which regulate interstate commerce in endangered or threatened species and export of CITES-protected species. The OMA also compiles CITES trade data for the annual report. OMA currently receives about \$859,000.<sup>101</sup> Its staff of twenty-four is too small to carry out these tasks effectively. Consequently, the CITES annual report is typically late and the staff lacks time to analyze permits and trade data to detect evidence of violations. An increase of \$100,000 would allow the hiring of two new staff members to carry out the program more effectively.

The FWS' Division of Law Enforcement is charged with investigating cases of taking and interstate trade that violates either the Endangered Species Act or the Lacey Act. This responsibility will expand with the recently adopted amendments to the Endangered Species Act.<sup>102</sup> In addition, the amendments would give FWS joint jurisdiction over imports and exports of ESA and CITES-listed plants.<sup>103</sup> Total law enforcement funding for the FWS in FY 1988 was about \$20 million, of which \$6.8 million was earmarked for endangered species and CITES.<sup>104</sup> However, it is impossible to separate personnel costs for endangered species enforcement from those costs for the enforcement of other legislation. Defenders of Wildlife has recommended an increase of \$3 million to permit hiring twenty-five to thirty additional Special Agents and

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100. *Id.*

101. Interview with Marshall Jones, member of the Office of Management Authority, Fish and Wildlife Serv., in Washington, D.C. (1988).

102. CAMPBELL, *supra* note 60.

103. *Id.*

104. *Id.*

ten additional Wildlife Inspectors, plus improvements in forensic and identification capabilities.<sup>105</sup>

The USDA, which is responsible for regulating imports and exports of ESA and CITES-listed plant species, has shown such a lack of commitment to law enforcement that a proposed amendment to grant joint jurisdiction to the FWS has received universal approval from members of Congress.<sup>106</sup> The Department of Agriculture delayed eleven years after receiving this responsibility before issuing final regulations to implement the program. In the period of 1981 through 1985, the Department of Agriculture never asked the Department of Justice to initiate a case. The Department of Agriculture has no staff assigned to investigate and presecute violations. In 1987, the department assigned responsibility for investigating plant trade violations to its Office of Inspector General — a solution which critics believe will not result in more aggressive enforcement.

The FWS, responsible for policing interstate trade in plants protected by the Endangered Species Act and Lacey Act, did not actively investigate cases until 1983. While CITES cases have been initiated, as of September 1988 no cases had yet been brought under the Endangered Species Act.

## 2. *Lack of Current Information*

The poor enforcement effort is intimately linked to other problems, such as the paucity of reliable trade data and aids for identification of plant species. CITES was supposed to provide reliable data on the volume of trade in individual plant species,<sup>107</sup> but the annual reports remain patchy in coverage, and much of the information contained in them is probably incorrect, particularly as to whether the plants are of

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105. *Endangered Species Act Reauthorization: Hearing on H.R. 1467 Before the Subcomm. on Fisheries & Wildlife Conservation and the Environment of the Comm. on Merchant Marine & Fisheries*, 100th Cong., 1st Sess. 252 (1987) (statement of John Fitzgerald, Defenders of Wildlife).

106. *Id.*

107. CITES, *supra* note 2.

wild or propagated origin. CITES reports do not provide information about the domestic trade or commerce in species not in the appendices, species which may be more threatened by trade than some species in the treaty.<sup>108</sup>

The difficulty in identifying individual species also contributes to poor enforcement. Efforts to develop identification aides have lagged badly at both the national and international levels. It is crucial that this handicap be overcome because unscrupulous dealers have reportedly mislabeled their imports in order to trade in protected species.

A final major factor complicating enforcement is the fact that a large proportion of the trade is in propagated plants. This segment of the trade affects wild populations indirectly, by confusing enforcement priorities and perhaps by stimulating demand for wild plants of the same species. Propagators resent the trade restrictions, especially when they see no effort to crack down on violators trading in wild plants. Unfortunately, the propagators have not turned this resentment into pressure on responsible agencies or the Congress to improve enforcement.

## V. Conclusion

At present, the statutes must continue to regulate commerce in propagated plants for several reasons. First, we do not yet have accurate information as to who propagates which species. Second, foreign and U.S. CITES enforcement agencies have not yet eliminated the practice of falsely reporting wild plants to be of propagated origin. Third, enforcement officials cannot distinguish wild-dug from propagated plants when they inspect them at ports. The result is that trade in plants declared to have been propagated probably continues to threaten wild populations.

As stated at the beginning of the article, the "cause" of plant conservation has received little attention until recently.

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108. *Id.* Among such plants are numerous species of bulbs quite familiar to even the most casual gardener, such as *Galanthus* (snowdrops) from Turkey and miniature *Narcissus* from Portugal. Many wildflowers native to North America are also collected for sale here and abroad.

As a result, legal measures have been adopted hesitantly and provide only a fraction of the protection accorded wild vertebrate fauna. Furthermore, enforcement of existing legal protections has lagged.

In order to effectively implement existing law, more resources — funding for listing and recovery of endangered species and increased use of criminal investigators — should be devoted to plants. To that end, there has been support for increased funding and larger staffs for the Fish and Wildlife Service, Forest Service, Bureau of Land Management, and key units of the National Park system. Lobbying efforts to specifically allocate funds for plant as opposed to animal species have met with partial success.

However, the present budget climate makes it unlikely that these agencies will ever be adequately funded to carry out endangered and rare species conservation. The responsible agencies should allocate their available resources on the basis of objective criteria measuring the threat to the species, technical ability to counter that threat, genetic uniqueness of the species, etc. Plant species should not automatically be relegated to a lower priority. While the Fish and Wildlife Service has adopted such a priority system, it has chosen to ignore it in practice.<sup>109</sup>

State legislatures must enact programs to regulate the harvest of native plants in a manner similar to the harvest of furbearers and other game animals. Such a program should include the following:

- criteria for determining all plant species which are collected from natural or semi-natural setting, as opposed to cultivated in controlled conditions.
- criteria for determining whether such plant species are native to the state and their biological status.
- a research program for determining sustainable harvest levels, seasons and other harvest practice, etc.

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109. United States General Accounting Office, *Endangered Species: Management Improvements Could Enhance Recovery Program* (GAO/RCED-89-5) (1988).

- a procedure for licensing harvesters and monitoring their take.
- a source of funding, which in principle would be based on user fees.

In most states, the Natural Heritage Program could assist in determining whether species are native and their biological status. However, few states have information on the species harvested, the quantities taken, or ecologically sound harvest practices. States also have to address the issue of whether to provide exemptions for the landowner or lands which are scheduled to be cleared. Legislatures will undoubtedly encounter considerable opposition to such proposals. In conclusion, development of such harvesting programs will be difficult technically, legally, and politically.

In the end, better legal protection for plants in the United States will depend on public support. It is encouraging to observe growing commitment to plant conservation among two groups of organizations — traditional conservation organizations and horticultural organizations. We will continue to work with all interested people to improve legal measures intended to ensure survival of plant species and communities.