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HAWAII AS A LABORATORY FOR PLANT INVASIONS: SHIFTING SCIENTIFIC AND HUMAN PERSPECTIVES OVER TIME

Most contemporary plant invasions stem from human activities; therefore, studies of human behavior can help us understand current and future trends. Here, I review changes over time in human motivations and perceptions associated with plant introductions and invasions in the Hawaiian Islands, with a view that islands serve as useful models for understanding processes that occur around the world. The earliest Polynesian settlers introduced only a few dozen essential food and fiber plants, one of which became invasive and is now the State Tree of the Hawaii. Plant introductions by early European immigrants (1778-1830) illustrate the desire for economic betterment as well as the influence of nostalgia, a universal human phenomenon. In later decades (1840-1900), a few individuals introduced hundreds of new plants for beautification; most of these introductions are best explained by neophilia. From 1850-1900 a population explosion among feral ungulates caused massive forest decline and erosion, leading sugar cane growers to complain of inadequate water supplies from denuded watersheds. Research indicated that the native forest could not be restored quickly, so thousands of plant species were imported to create new forests. These plant introductions were definitely motivated by a desire to improve ecosystem services. By the 1950s, there was a shift toward recreational uses of forests. Strawberry guava, one of the most serious threats to native ecosystems, was widely planted along forest trails to provide a refreshing treat for hikers. Practitioners of native species and ecosystem conservation face four societal challenges that will continue to feed new invasive plants into the system 1) neophilia and its ability to generate rapid economic gains, 2) pressures to increase economic productivity, 3) nostalgia, and 4) the inability of most people to distinguish native from non-native ecosystems. Laws restricting plant importation are likely to be only partly effective because the first three phenomena are driven by human nature and economics. A practical approach to conserving native ecosystems is discussed.

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