



BAY AREA BARNS AND TRAILS - EDUCATION, PRESERVATION & STEWARDSHIP

'Helping acquire, protect, preserve, and maintain stables, trails, pastures, staging areas, and horse camps in the San Francisco Bay Area.'

REGIONAL E-NEWS FROM 'BAY AREA BARNS AND TRAILS'

May 24, 2006 (1 of 2 pages)

"Dominican University of California

"Study of Invasive Weeds in National Parks

"Dominican University of California researchers, in partnership with the National Park Service (NPS), are investigating whether horses contribute to the spread of noxious and invasive weeds into California's national parks.

The horse study is part of a \$100,000 NPS grant awarded last year to Dominican to study ways to slow the spread of non-native plants and noxious weeds in California's national parks.

While NPS units in California use integrated pest management strategies to eliminate or control existing populations of non-native plants in conjunction with restoring native species and ecological processes, a largely overlooked part of the battle against non-native plants involves prevention of new invasions, notes Sibdas Ghosh, professor and chair of Dominican's Department of Natural Sciences and Mathematics. Weeds frequently are spread by wind and birds.

Weeds also can be spread by recreational users - either on bike tires, hikers' boots, and in dirt in horse hooves. Some park officials also believe weeds can be spread via horse manure.

"There have long been comments, assumptions, hypotheses, and anecdotal information that some seeds viably pass through the horse gut, and once in horse manure, they ultimately sprout, grow, and germinate. Supposedly, some of these plants could be noxious or invasive weeds," says Ghosh.

Several states, including Colorado, Nevada, and Montana, require horse owners to feed their animals feed that has been certified as weed and weed seed free before traveling over state and federal lands. However, no scientific study has ever been conducted examining horses' impact on the spread of noxious weeds. More than 750,000 horses use California's public lands each year, and recreational use of horses contributes about \$2 billion to the state's economy each year.

About three years ago the NPS formed the California Weed Free Feed and Mulch (CWFF) program in an attempt to stop weedy invaders before establishment in and alteration of native habitats. Participants in CWFF include Dominican University of California, the Bureau of Land Management, the U.S. Forest Service, and Fish and Wildlife Service, along with members of the horse community. It was the CWFF committee members who agreed on the need to study whether or not horse manure contributes to the spread of noxious weeds.

"Our team is testing a working hypothesis that horse use in native ecosystems leads to introduction and spread of noxious weeds," says Ghosh. "While preliminary evidence exists to support this hypothesis, some believe that such evidence is anecdotal and without a scientific basis. We need to know through scientific research if horses do or do not spread weeds and if they do, what is the impact on the parks."

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"Study of Invasive Weeds in National Parks (continued from page 1)

..."Bonnie Davis, a committee member with the American Horse Council and a member of CWFF, says California horse owners are concerned about where to purchase their food - and how much it will cost - once they are required to purchase certified weed and weed seed free food.

"Because California growers have not received any instruction on how to become a certified weed and weed seed free grower, California horse owners will have to purchase their certified feed from out of state until guidelines are produced," says Davis, who adds that a bale of hay costs between \$5 and \$7.50 if purchased in California but \$20 and up per bale if bought from an outside grower who is certified to be a weed free feed grower.

"We have said many times to many park officials that we want to see evidence that horses spread these noxious and invasive weeds. If they don't, then why should we have to buy this expensive hay from an out-of-state grower," says Davis.

The first phase of the three-part Dominican University study began this summer when samples of horse manure were collected randomly from pastures, corrals, paddocks, stalls, and trails throughout the San Francisco Bay Area. In all, 45 samples were collected and stored using sterile procedures. Samples were then split into two: with one set of samples dried and the other set sealed in individual sterile bags. After one week, both dry and wet samples were weighed and planted individually in sterile 4-inch pots containing weed free soil for a total of 90 samples. The samples were left to grow in an enclosed, netted potting shed located three feet off the ground. They were monitored daily for comment notes, growth, and photos for two months.

Of the 90 pots, 34 plants germinated in 21 pots of which 12 represented dry and nine represented wet samples respectively. All plants were identified by a member of the California Native Plant Society. None of the plants identified are listed as noxious weeds by the California Department of Food and Agriculture (CDFA).

Two additional phases of the study will be conducted throughout the year, for a total of 270 samples collected from throughout the state. Samples will be collected from Lassen National Park, Whiskeytown National Recreation Area, Point Reyes National Seashore, Golden Gate NRA, and Juan Bautista National Historic Trail. Collection sites will include trails, trailheads, stables, barns, and pastures.

Once it is determined what plants grow in horse manure, Dominican University researchers will work with the NPS to develop directives that the NPS can adopt in California for the use of weed free feed.

The University recently received a \$10,000 grant from California-based EnviroHorse in support of the horse study."