STATEMENT

of

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U. S. DEPARTMENT OF AGRICULTURE

BEFORE THE

UNITED STATES SENTENCING COMMISSION

MARIJUANA CULTIVATION AND THE ENVIRONMENTAL IMPACTS ON PUBLIC LANDS

Madame Chairman and members of the Committee, my name is Chris Boehm and I am the Assistant Director of Law Enforcement and Investigations – Forest Service, U.S. Department of Agriculture (USDA) Forest Service. Thank you for the opportunity to present the Department's views on "Marijuana Cultivation and the Environmental Impacts on Public Lands". I will focus my testimony on the environmental impacts of illegal marijuana grow sites on National Forest System lands.

The Forest Service manages national forests and national grasslands in 42 states and Puerto Rico with the mission[1] *"to sustain the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations."* Lands in the National Forest System are among the crown jewels of the United States and North America. They produce abundant clean water, and provide high quality wildlife habitat and diverse wildlife and fish populations, forest products, forage and unsurpassed recreation opportunities. The conservation mission of the Forest Service is recognized worldwide, as is the agency's management of the 193 million acres of the National Forest System.

[1] http://www.fs.fed.us/aboutus/mission.shtml

The attributes that make the lands of the National Forest System excellent producers of wildlife habitat and clean water are also prized by illegal marijuana growers. The lands are remote with few people, the forest vegetation is dense, there is an extensive system of roads and trails (both open and closed), soils are fertile, and water for irrigation is available for the diverting. Because of these environmental factors, the number and sophistication of sites where illegal marijuana is grown on National Forest System lands is considerable. The Forest Service recognizes that the insidious spread of illegal marijuana grown from national forest to national forest requires the attention of the combined cooperation of federal, state and local law enforcement agencies to stop the growers. We cannot solve this problem alone; it will take collaboration with other jurisdictions and the support of the public.

FOREST SERVICE LAW ENFORCEMENT DRUG CONTROL AUTHORITY

The National Forest System Drug Control Act of 1986 (P. L. 99-570, Title XV) (16 U.S.C. 559b – 559g) provides specific authority for the Secretary of Agriculture "to take actions necessary in connection with the administration and use of the National Forest System to prevent the manufacture, distribution or dispensing of marijuana and other controlled substances." Forest Service law enforcement was further enhanced under the National Forest System Drug Control Act by the Anti-Drug Abuse Amendments Act of 1988 (P. L. 100-690, Title VI) in which Congress found that National Forest System lands are "a haven for the unlawful production of marijuana and other controlled substances," which endangers the public, interferes with the ability to manage natural resources, and causes damage and destruction of natural resources. The unlawful production is often generally harmful to the environment and public health and safety, pollutes the air, soil and water and is harmful to wildlife. Congress recognized that "the Forest Service needs additional authority to adequately deal with the problem of controlled substance production…[and to be able] to exercise its investigative authorities outside the boundaries of the National Forest System for drug related crimes arising from within the National Forest System…[without conflicting or interfering]…with the statutory authority, powers, or responsibilities of any State…[and to cooperate] with any other Federal, State, or local law enforcement authority."[2]

Findings in Public Law 100-690, Title VI, Subtitle H, Section 6254, § 6254(a)(3)-(6), November 18, 1988, 102 Stat. 4181, 4363.[2]

Under these authorities, Forest Service Law Enforcement and Investigations (LEI) has vigorously pursued the illegal cultivation of marijuana on National Forest System lands in addition to its other obligations and responsibilities.

CULTIVATION OF MARIJUANA ON NATIONAL FOREST SYSTEM LAND

It is thought that marijuana was first grown on National Forest System lands in the mid to late 1960s. The cultivation sites were few in number and occurred in isolated and dispersed geographic areas of the National Forest System because the remoteness of the area aided the illegal operation by allowing it to occur without observation or discovery. The cultivation and production at these early sites corresponded to the increasing societal use and acceptance of marijuana as a recreation drug and cultural symbol. However, by the mid1980s serious and significant marijuana grow operations were being discovered by Forest Service land managers, the public and State and local law enforcement authorities.

DESCRIPTION AND DYNAMICS OF THE CURRENT THREAT

Today, many National Forest System marijuana grows are cultivated by drug trafficking organizations (DTOs) that are organizationally sophisticated and include armed guards, well-honed logistics and state-of-the-art cultivation practices. DTOs were first detected operating on National Forest System lands in Southern California in 1995. Since then, DTOs have spread across the country, and today are actively operating in 22 States and 72 National Forests across the National Forest System. DTOs present a serious risk to national forest visitors and employees, as individuals are often armed with semi-automatic rifles and handguns and will protect their marijuana crops with violent actions against anyone entering grow site areas. Marijuana cultivation sites may also be protected by improvised anti-personnel devices. A grow site often consists of 1 or 2 camping or sleeping areas, interconnected by a trail system which provides quick access to additional plots that may be separated by a few yards or up to a half a mile. The camping and sleeping area may be spread over 1 to 2 acres and the “growing areas” 10 to 20 acres, with the total impacted area being up to 50 acres. Grow sites usually have one or two observation posts that overlook natural ingress and egress points to notify and protect individuals in the grow site of anyone that may be in close proximity to the site.

From fiscal year 2005 through fiscal year 2013, Forest Service LEI accumulated data through its Law Enforcement and Investigations Managerial Attainment Reporting System (LEIMARS) documenting that approximately 5,592 sites containing over 19 million marijuana plants were eradicated on National Forest System lands. In California alone, approximately 3,356 sites containing over 16 million marijuana plants were eradicated on National Forest System lands.

ENVIRONEMNTAL IMPACTS OF CULTIVATION SITES TO NATIONAL FOREST SYSTEM LANDS

Marijuana cultivation operations create intensively disturbed sites, often in remote areas of a National Forest. The remoteness of the grow sites also pose challenges for the planning and implementation of cleanup and restoration. Environmental impacts from growing marijuana are severe and directly threaten the health and sustainability of our National Forests. Growers clear native vegetation before planting and install miles of plastic tubing to transport large volumes of water from creeks and other natural water sources for irrigation. Native soils are often disturbed or displaced by digging holes for planting, terracing, and by excavating large water holding areas or existing water sources such as streams or springs. The diversion of water resources reduces stream flows for fish and aquatic habitat and limits or denies water access for wildlife and native plants. Overuse of fertilizers harms native vegetation and contaminates the soil. Frequent use of herbicides, rodenticides, and pesticides kill competing vegetation and wildlife and leach deeply into the soil. Human waste and trash are widespread. Rain and winter runoff creates severe soil erosion and wash the poisons, chemicals, human waste, and trash into streams and rivers.

A typical marijuana cultivation site produces hundreds of pounds of trash and debris. The trash and debris commonly includes poly tubing and other irrigation material, food packaging, discarded clothing, plastic bags and tarps, camping equipment, batteries, propane cylinders, and other discarded material that scar the pristine landscape and harm the native ecosystem for years if not promptly removed. In fiscal year 2013, over 118,901 pounds of trash, 80.5 miles of tubing, 244 propane tanks, and 61 car batteries were removed from grow sites in California alone.

One of the most dangerous and far reaching impacts of cultivation operations to the environment is the widespread use of chemicals in large quantities during the cultivation process. These chemicals commonly include fertilizers, soil amendments, pesticides, rodenticides, and herbicides. Most of these chemicals are common brands available to the average consumer- although legal, they are often applied inappropriately and in excessive quantities. However, many of the chemicals that are also used are restricted, commercial use only products or chemicals banned from use in the United States due to their extreme toxicity.

Last year in California alone, 17,091 pounds of fertilizer, almost 40 gallons of liquid pesticides, and over 5 gallons of banned poisons were recovered prior to use from grow sites. These numbers, although alarming themselves, represent only a small portion of the chemicals introduced into the fragile ecosystem. It is unknown how many tons of fertilizers, gallons of toxic liquids, or pounds of solid poisons are applied and used during the cultivation process on our public lands. However, we do know that the impacts are significant and far reaching.

The chemicals used in the cultivation process create significant impacts to all parts of the forest ecosystem. The illegal cultivators have no interest in the sustainability or future yield of the land similar to what a farmer or other agricultural professional would. There are no concerns for any of the associated negative effects to any other portions of the ecosystem. Misuse, overuse, spills, and improper storage or disposal are not an issue for them. Their goal is to grow marijuana and they do not care what it takes to do it.

Americas National Forests and grasslands contain over 400,000 miles of streams and rivers, over 3 million acres of lakes, and support many aquifer systems. The numerous watershed areas and other water systems serve as the largest source of drinking water in the contiguous United States. These waters also protect and support habitat for more than 550 rare, threatened, and endangered aquatic species and numerous land based species.

Each year, tons of plant fertilizers are used during the marijuana growing process. The most common ingredients of these fertilizers are nitrogen, phosphorous, potassium and other assorted “micronutrients”. When applied to the native soils, the chemicals alter the natural chemical and

pH balance and may damage or destroy native plants. The fertilizers also leach deeply into the soil and enter the groundwater or are washed from the surface into streams, rivers, and wetlands. The harmful effects of nitrogen and other fertilizer byproducts on aquatic systems and drinking water have long been known and widely studied.

A wide variety of pesticides and herbicides are also commonly used during the cultivation process. These chemicals have wide ranging effects on multiple segments of the ecosystem. The pesticides and herbicides kill local native plants, insect species, and also enter the soil and surrounding water. Many of these pesticides and herbicides are also absorbed by native plants and consumed by local wildlife. In many cases, these chemicals are persistent and may remain in the soil at toxic levels for months if not years.

Some of the pesticides used in grow sites are banned from use in the United States. There have been numerous instances where banned chemicals such as Carbofuran and other carbamate based insecticides have been found in grow sites. Carbofuran is described as "one of the most toxic" pesticides and was banned from use in 1994 by the EPA. It is highly toxic when exposed by inhalation and absorption through the skin and will cause contact burns to the skin and eyes, respiratory damage, and produce poisonous gases when exposed to flame[3].

Another type of chemical use of significant concern that poses a very specific threat to wildlife is the use of rodenticides and other toxins at the grow sites. Rat poisons, gopher poisons, and a variety of other poisons are used by growers to protect their plant areas, sleeping areas, and kitchen areas from native wildlife. Many of these poison "baits" are designed to attract local wildlife and contain other products that encourage the animals to eat the material. They do not warn or deter wildlife from entering the site, they attract and then kill the wildlife. They are indiscriminate and can kill most animals that ingest or come into contact with them. Many sites have also been found to utilize "chemical fences" to protect their site from local wildlife.

[3] Extension Toxicology Network- A Pesticide Information Project of Cooperative Extension Offices of Cornell University, Michigan State University, Oregon State University, and University of California at Davis. The USDA/Extension Service/National Agricultural Pesticide Impact Assessment Program. (1993)

Also, these poisons do not just effect wildlife at or near the grow site. It is common for a rodent such as a field mouse or rabbit to ingest the material, move away from the site and sicken or die. The animal may then be "scavenged" or caught by another animal and consumed. Most of the baits and poisons are so toxic, they can still be lethal or cause significant exposure to the secondary animal consuming it. These secondary exposures are common for raptors such as owls, hawks, and eagles and other predatory mammals such as bears, weasels, and coyotes.

Scientific studies of the two known National Forest populations of the Fisher (Martes pennanti), also known as the Pacific Fisher, have shown specific impacts from illegal cultivation sites [4]. The Fisher is a member of the weasel family and a North American boreal forest or high elevation forest dwelling creature in the United States. The Fisher is also a candidate species for listing under the Endangered Species Act (ESA) and has been identified by the Forest Service as a sensitive species. Secondary exposure of wildlife to pesticides has been well documented. The copious use of rodenticides by marijuana growers to combat herbivory from small animals such as voles and snowshoe hares, as well as ground and tree squirrels significantly impact Fishers. In 2009, a male fisher was found dead in the Sierra National Forest and subsequent necropsy revealed that the animal died of acute rodenticide poisoning. Follow-up testing revealed that 85% of fisher carcasses recovered by two research projects in the previous three years tested positive for rodenticides. Further investigation indicated that the most likely source was the numerous illegal marijuana cultivation sites currently found on public lands throughout the western United States. Researchers have continued to document multiple examples among the California Fisher populations where the blood and tissue samples have concentrations of warfarin and other anticoagulant rodenticides that cause organ damage in mammals by inhibiting blood coagulation.

The hazardous and long lasting effect to the water, wildlife, and environment from the dangerous and toxic chemicals used in marijuana grow sites cannot be understated. However, we must also briefly explore the potential risk to law enforcement, employees, volunteers, forest visitors, and

[4] Thompson, C., Sweitzer, R., Gabriel, M., Purcell, K., Barrett, R. and Poppenga, R. (2013), Impacts of rodenticide and insecticide toxicants from marijuana cultivation sites on fisher survival rates in the Sierra National Forest, California. Conservation Letters. doi: 10.1111/conl.12038

even the growers to these dangerous toxins and poisons. The potential health danger to anyone coming in contact with these toxins is extremely high. Many of these chemicals can cause great harm, sicken, or even kill humans. Many of these chemicals, once applied, are difficult to detect and not readily recognizable. Exposure to these toxins and poisons may occur at any time from contact with plant material, soil, infrastructure, or any trash or debris found in a grow site.

CLEAN UP AND RESTORATION OF MARIJUANA GROWS

Cleaning up marijuana grow sites on National Forest System lands requires a coordinated effort involving numerous Forest Service staff areas, other federal, state and local agencies, and possibly contract employees or volunteer groups. The most efficient and effective restoration missions have been done in conjunction with eradication operations, when the restoration crews come directly after the eradication teams. This approach provides the greatest utilization of available assets as well as protecting public and employee health and safety.

The typical remediation and cleanup team includes representatives from law enforcement, fire, natural resources, heritage resources, hazardous material and pesticide certified personnel, safety, as well as state and local agencies. Other resource specialties are included depending on the resource issues associated with the grow site. The team develops a plan after conducting a reconnaissance to determine the complexity of the cleanup and restoration required. An inventory must be conducted to identify the kinds of materials present, including hazardous materials; and to identify the most efficient and effective way in which to address resource damage and protect public health. The average cost of a site cleanup is approximately fifteen thousand dollars. In fiscal year 2013, over 329 sites were reclaimed on National Forests in California.

Site rehabilitation is also carried out at some cultivation sites where the vegetation and forest litter or ground cover has been greatly reduced because of human activity associated with the occupancy and use of the site. Soils become compacted, thus reducing infiltration and percolation of precipitation, most especially rain. Where the loss of forest cover associated with cultivation sites is documented, specialists will prepare the ground for native plant seeding by scarifying the soil or applying certified straw and mulch for ground covering to prevent erosion

from occurring or invasive or noxious weeds from becoming established. This work is small-scale and labor intensive, thus making it expensive on a per acre basis[5]. The total costs for cleanup and rehabilitation of a site with hazardous materials and significant damage can cost nearly a hundred thousand dollars. Therefore, it is applied only to sites that meet established criteria based upon physical, ecological or biological criteria.

CONCLUSION

The illegal cultivation of marijuana in the National Forest System is a clear and present danger to the public and the environment. We are committed to ensuring the safety of the public and Forest Service employees by working with our Federal, State and local partners to identify, investigate and prosecute illegal growers and their organizations. We will continue to prioritize the cleanup, remediation, and restoration of grow sites and take any and every step necessary to protect our National Forests and any other public lands from the devastating effects of illegal marijuana cultivation. In the face of this threat, our mission *"to sustain the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations,"* has never had more relevance. Madame Chairman and members of the commission, this concludes my testimony. I am happy to answer any questions that you may have.

[5] U.S. Forest Service Resource Damage Assessment Report, Wallowa-Whitman National Forest, July 2011.