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Subject: Phreatophyte Management Plan

Attached are my comments on the NM Statewide Policy and Strategic Plan for Non-Native Phreatophyte/Watershed Management.

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COMMENTS ON NEW MEXICO STATEWIDE POLICY & STRATEGIC PLAN FOR NON-NATIVE PHREATOPHYTE/WATERSHED MANAGEMENT

Date: July 18, 2005

To: New Mexico Non-Native Phreatophyte/Watershed Interagency Workgroup

From: Ann McCampbell, MD

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NOTE: Please accept my comments submitted today. Although I have been an interested party in state salt cedar management since 2002 and submitted comments on the Governor's Salt Cedar Task Force Report in 2004, I was not notified about the current draft Plan. I only became aware of the Plan on Thursday, July 14th and was unable to review and make comments on it until today.

GENERAL COMMENTS

1. I do not think the New Mexico Department of Agriculture (NMDA) is the appropriate agency to manage the non-native phreatophyte program as outlined in this Strategic Plan, for the following reasons:
 - a. It creates an inherent bias towards the use of herbicides as the control measure;

- b. The NMDA has not shown itself to be responsible in the past, having allowed the use of Arsenal in the Bosque del Apache for years, even though it was in violation of the label (stated it was illegal to use near bodies of water), and dispensing funds to Soil & Water Conservation Districts for herbicide spraying despite their lack of restoration and monitoring plans as required by the legislation that appropriated the funds;
 - c. There are unanswered questions about whether a proper bidding procedure was followed before hiring North Helicopter (for aerial herbicide applications), which seems to enjoy a special and exclusive relationship with NMDA;
 - d. There are unanswered questions about whether funds for previous projects have been properly managed. I believe the state Auditor has looked into this, but am unaware of the results or whether they have been released for public review; and
 - e. NMDA reports to the Board of Regents of New Mexico State University and is not under direct control of the Governor.
2. More appropriate agencies for managing the non-native phreatophyte program include the State Forestry Division of NM Energy, Mining, and Natural Resources Department or the New Mexico Environment Department.
 3. It is not clear from this Plan who makes decisions about phreatophyte management projects, such as which ones are funded, at what amount, and by what method. Is it the landowner? The local Soil & Water Conservation District? Debbie Hughes (New Mexico Association of Conservation Districts)? NMDA? The technical advisory panel?
 4. I support the creation of a technical advisory panel, but the Plan is too vague about the expertise to be represented on the panel. The Plan should specify that the panel will be comprised of experts in water, ecology, soil health, wildlife, biology, botany, weeds, toxicology, and public health, to name a few. The approximate size of the panel should also be established.

In no case should any individual who stands to benefit financially from control efforts, such as representatives of helicopter companies or herbicide manufacturers, goat owners, etc., be on the panel, although their input could be solicited by and useful to the panel.

It would be preferable to have the panel appointed by the Governor rather than NMDA. A well chosen technical advisory panel is probably the best entity to review and make decisions about state-funded phreatophyte projects. The function of the panel should include *establishing* performance objectives and milestones and not be limited to reviewing projects for their achievement.

5. While I generally support the templates and protocols for control, revegetation and rehabilitation, monitoring, and long-term management and maintenance (sorely lacking from previous projects), I am concerned they may be so comprehensive they cannot be realistically implemented on all projects.

I suggest, as an alternative, that a 2 year pilot program be created as Phase 1 of the Plan that uses these comprehensive protocols to assess the impacts of various control methods (e.g., hand cutting with herbicide applications, mechanical removal, hand and aerial herbicide applications, and goats) on 6-10 representative projects (e.g., areas of high, medium, and low density phreatophytes).

The results of these projects could be used to guide and streamline the approach to future projects. It would also help clarify the urgency with which the Plan needs to be implemented. If it is demonstrated, for instance, that the removal of phreatophytes does not significantly impact water flow, then there would be far less impetus to rush into projects before optimum management methods have been determined.

6. I agree that day-to-day management of individual projects is best done by local Soil & Water Conservation Districts. I fail to see a role, however, for the NM Association of Conservation Districts (NMACD). This Association is neither mentioned in the 2004 governing legislation (“... in consultation with the *soil and water conservation districts*”, not the Association), nor any previous legislation.

It is my understanding that the NMACD has wielded significant and unwarranted influence over the spending of state funds for past projects. The Plan should ensure that this situation does not continue.

7. In order to make informed decisions, landowners need to be told what control methods are available and provided standard and accurate information about their efficacy and hazards. In particular, the hazards of herbicide use need to be better explained.

In the past, it has not been uncommon for landowners to be told that herbicides are the only method available to control phreatophytes, or that there are various methods available, but herbicides are the only ones that work and they are perfectly safe. This is not true and has biased landowners towards choosing to use herbicides when other methods were available.

Sometimes, landowners were also told herbicides are the cheapest method and it was implied that to be a good citizen, and save the state money, they should chose to use herbicides.

A multi-stakeholder committee should create an informational booklet about the pros and cons of using existing control methods. Where consensus can not be reached on an issue, opposing views should be presented, in order to provide landowners with the most complete overview of the issues that need to be considered when making decisions about control methods.

8. The Plan fails to require that when herbicides are applied, adequate notification (before, during and after) needs to be given to neighbors, the community, downstream water users, and anyone else that requests to be notified.
9. I support continuous, sustainable funding for phreatophyte programs only if a true integrated pest management (IPM) approach is used. In true IPM programs, herbicides are only used when nonchemical methods have failed to achieve the desired goal. They are never used as the primary control method.
10. Phreatophytes have been blamed for New Mexico's difficulty in complying with its compact to deliver sufficient water to Texas, although this has not been proven. Even if phreatophytes are contributing to some water depletion, there are other practices, such as the use of open irrigation ditches for agriculture, that are likely to be having equal if not greater impacts. Whether it is covered in this Plan or other appropriate forum, the state needs to address other ways to reduce water consumption, loss, and wastage rather than focus primarily on phreatophyte removal.
11. Provisions should be included in the Plan for public observation of control, monitoring, and revegetation activities.

COMMENTS ON SPECIFIC SECTIONS

Executive Summary

p. 1 – “Tamarisk ... has no natural enemies”.

I assume this means in New Mexico, since the Chinese leaf beetle is an effective biocontrol agent.

Background

p. 11 – “The public and policy makers have expressed concerns about large-scale herbicide use and the *perceived* lack of comprehensive revegetation planning.”

The lack of comprehensive revegetation planning is real, not “perceived”.

NMDA and NMACD have taken a “spray now and worry about the consequences later” approach with previous projects. The vast majority of appropriated funds have been spent on control measures, mainly herbicide applications.

p. 11 – “Problems encountered thus far typify start-up issues common with new programs.”

What problems have been encountered? Without identification of the problems, it impossible to determine whether they are “typical” of new programs or represent more fundamental flaws with project plans.

p. 12 – “Project managers are now more responsive to landowner complaints because of the experience they have gained since the program’s inception.”

What experience? Who are the “project managers”? What complaints have been made by landowners? Were they ignored in the past? If so, why? What does being “more responsive” now mean?

p. 12 – “The templates and protocols included in this Plan will help guide future programmatic decision-making, provide improved *assurances*, and”

Decision-making by whom? Shouldn’t this read provide “more accurate information” rather than “assurances” to project participants?

p. 12 – “There are concerns over the manner in which prior control efforts have been conducted, especially in the area of herbicide use and application. Using valuable insights derived from project *experiences*, adjustments are being made to improve the *process*.”

What experiences? Shouldn’t this read adjustments are being made to improve “the application of control measures”?

p. 16 – “... *broadly inclusive collaboration* will ensure that the best possible solutions are being developed and put into practice.”

Health-affected individuals who are especially vulnerable to the adverse health effects of herbicides, dust, diesel exhaust and other environmental factors related to control measures, should be included in the collaborative effort.

Recommendations

p. 1 – “NMDA internal program accounting functions will continue to track appropriation expenditures.”

This is inadequate. There needs to be independent oversight over NMDA expenditures.

p. 2 – “Independent assessment of projects will be performed to verify how well objectives identified at the start of projects are being achieved. This activity will require additional resources and may be performed by either NMDA or its subcontractor.”

Neither NMDA or its subcontractor are capable of making an “independent” assessment. This should be done by individuals, agencies, or organizations that are not affiliated with or hired by NMDA, Soil & Water Conservation Districts, or NMACD.

p. 2 – “Agencies, *including NMDA*, that fund and/or implement forest and watershed health-related programs will retain *autonomy* in programmatic decision-making and funding, but will, where relevant, ensure project management plans conform to the templates and protocols contained within this Plan.”

Does this mean the plan is for NMDA to make all the decisions regarding projects using state funds?

p. 4 – Footnote

Who is Kirk McDaniel?

Implementation of Recommendations

p. 2 – “Members [of the technical advisory panel] will serve primarily in a voluntary capacity.”

Does this mean every member is paid a small amount? That some members are paid and others are not?

Templates and Protocols

p. 3 – Control, #8, “Quantify the potential impacts associated with ... [bullet] herbicide use, both short-term and long-term.”

Does this refer to short- and long-term *use* of herbicides or the short- and long-term *impacts* of herbicide use?

p. 6 – Revegetation, #3, “Select appropriate alternatives ... [bullet] “*artificial plantings*”

What are “artificial plantings”?

p. 11 – Monitoring, #2, “Measure appropriate surface and groundwater parameters that will allow direct comparison with published results of NM Environment Department

monitoring and analyses. These may include, but are not limited to” Surface and groundwater measurements of ... [bullets] *herbicides*.”

Measurements of water contaminants resulting from herbicide use need to include *all* the ingredients in an herbicide product and not just the active ingredient. No herbicide product should be used in the implementation of this Plan unless the manufacturer is willing to provide a complete list of the chemicals contained in its product.

Furthermore, water monitoring should not be limited to substances for which the NM Environment Department (NMED) has published results, since NMED may not have published results on all the active ingredients proposed for use or all the “inert” ingredients in the herbicide products.

p. 11 – Monitoring, #3, Measure appropriate aquatic and terrestrial habitat parameters that are consistent with published data from the NM Department of Game & Fish and the U.S. Fish and Wildlife Service. These may include but are not limited to: [bullet] invertebrate *species* richness”.

It is essential that invertebrates are, in fact, monitored at the “species” level rather than at the genus or family level, as is commonly done, in order to determine the true impact of control measures (especially herbicides) on macroinvertebrates.

Macroinvertebrate monitoring should, therefore, not be restricted to parameters used by the NM Department of Game & Fish and the U.S. Fish & Wildlife Service.

p. 11 – Monitoring, #4, Soils

Soils microbes also need to be monitored.

Definitions

I suggest defining “Landowners” in the text and in this section. Does the term landowners include private individuals, government agencies, non-profit groups, corporations, businesses, others?

p. 44 – “Partners are considered to be any State, federal, local, Tribal, non-governmental, individuals, or private entities that *cooperate* in the non-native phreatophyte program.”

It still is not clear who “partners” are. What does “cooperate” mean? Does this refer to entities that implement projects? Other?

NON-NATIVE PHREATOPHYTE CONTROL

Although this document was issued in March, 2005, I understand it is still undergoing revisions.

There is mention made in several locations that *herbicide* re-application will be *necessary* to control resprouts. This jumps the gun in assuming herbicides will be the control method chosen. It would be more appropriate to say that some resprouting is to be expected and will need to be addressed in some manner. In fact, goat grazing and mechanical removal would often be more appropriate for treating resprouts than using herbicides.

p. 8 – While the accuracy of aerial herbicide applications may have improved with computer controls and improved nozzle design, this document fails to note that there is inevitable herbicide drift and only a small fraction of aerially applied herbicide reaches the target vegetation.

ADDITIONAL COMMENTS

Below, I have included amended excerpts from my comments to the Governor's Salt Cedar Task Force on April 2, 2004, for inclusion as part of my comments regarding the current Plan.

EPA Registration Does Not Equal Safety:

All pesticides are toxic products that pose risks to human health and the environment. While the EPA does some safety reviews before registering pesticide products they fall far short of being thorough and are wholly inadequate to ensure a product's safety. So much so that it is against federal law for a manufacturer to claim that its pesticide product is "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets," with or without the qualifying phrase "when used as directed" [FIFRA - 40 CFR 156.10(a)(5)].

Testing required by EPA prior to registering a product is almost entirely on the active ingredient(s). The "inert" ingredients, which can be more toxic than the active ingredient, be active ingredients in other pesticide formulations, and comprise up to 99% of a product, are essentially untested and unregulated. In addition, the identification of "inert" ingredients do not have to be revealed by manufacturers, including those in the herbicides being used for salt cedar control, which makes it almost impossible to fully assess their potential health and environmental impacts.

The testing on the active ingredient is also incomplete, because it does not take into account cumulative effects or synergistic interactions with other pesticides and environmental pollutants, including the complete lack of assessment of potential health and environmental impacts of mixtures of herbicides used together (e.g., tank mixes) or combinations of pesticide products with surfactants, and drift control and foam reducing

agents. The testing also does not adequately assess short- and long-term neurological, immunological, and endocrine (hormone)-disrupting effects on humans and wildlife or sufficiently test for impacts on vulnerable populations, such as children, pregnant women, the elderly, and those with chemical or pesticide sensitivities.

The meaning of pesticide registration is further confused by claims that prior to registering a product the EPA determines that it will cause "no unreasonable adverse effects on the environment." But this misleading term is only part of the equation. The EPA uses a risk-benefit analysis in determining whether to register a product, which means that safety is not its sole concern, nor even necessarily its primary concern.

According to federal law regarding EPA registration of a pesticide, "Unreasonable adverse effects on the environment" means "any unreasonable risk to man or the environment, *taking into account* the economic, social, and environmental costs and benefits of the use of any pesticide." [FIFRA, 7 U.S.C. Section 136(bb)].

This means that any product can be registered regardless of its adverse effects, if the EPA feels the benefits outweigh the risks. Not infrequently the "benefits" are to business or special interest groups, while the risks are to human and environmental health.

A good example is the recent federal registration of Habitat (imazapyr). It has been registered not because it is safe to use, but because weed managers have insisted that they *have to* have it to manage salt cedar. It is thus circular and backwards reasoning to claim that Habitat use is acceptable because the EPA registered it and determined it was safe, when in fact, the EPA registered it despite it *not* being safe because weed managers want to use it.

Another reason EPA registration cannot be relied upon to determine the safety of pesticides is that it can change its mind. Several widely-used registered pesticides like DDT, chlordane, and most recently chlorpyrifos, are now banned from all or most uses. EPA's decision to withdraw registration of a pesticide is usually the result of health or ecological problems that come to light after the product is on the market, thus emphasizing that health and environmental impacts are not fully determined prior to registration.

In the case of using herbicides for salt cedar control, we need to ask if we really want to experiment on the state's precious waterways to find out what unanticipated adverse effects Arsenal (imazapyr) will have when applied on a massive and almost unprecedented scale.

State registration of a pesticide by the NM Department of Agriculture (NMDA) adds no measure of protection since the Department merely relies on EPA's decision to register a product and does no health or safety evaluations of its own. In fact, the NMDA has no authority to deny state registration to a federally-registered product unless it determines that the product is ineffective.

Drift, Volatility, Soil Migration, Spills, & Crashes:

All sprayed pesticides and herbicides drift on to nontarget areas, with aerial spraying causing the most amount of drift. Even with the best helicopter equipment now available, drift will occur. According to aerial pesticide expert Norman B. Akesson, Prof. Emeritus, Department of Bio/Agr. Engineering, UC Davis:

*“ Our work with low-drift loss helicopter applications indicates that the losses can be kept to a minimum---comparable with good low-drift ground equipment. However **no application of a potentially harmful pesticide should be made closer than 200 to 500 feet of waterways, sensitive non-target crops or human and wildlife habitat whatever the means for application. In other words, small but potentially harmful amounts (depending on the chemical toxicity) leave the application swath from whatever means are used to apply them ...**”* (email to Ann McCampbell 12/25/03)

Pesticides and herbicides also do not remain where they land. They can re-volatilize into the air and drift to nontarget areas for days or weeks following their application. Pesticide-contaminated soil can also reach nontarget areas by being blown by wind or eroding into waterways. This is likely to be an especially important pathway in the case of Arsenal (imazapyr) which is extremely persistent in soil.

Pesticide applications do not always (and maybe never) go as planned. There can be spills, misapplications, and in the case of aerial applications crashes of aircraft loaded with pesticide, the latter having been known to occur in agricultural settings. These scenarios need to be considered when fully assessing potential adverse environmental consequences of spraying pesticides for salt cedar control.

Vulnerable Populations:

Children, pregnant women, the elderly, those with asthma, chemical sensitivities, or other respiratory, immunological, or neurological disorders are at much greater risk of suffering adverse health effects from exposure to pesticides. In the past 20 years there has been a dramatic increase the prevalence of asthma in children. The NM Department of Health (NMDOH) has estimated that 6% of adults in the state have asthma, 16% have chemical sensitivities, and 2% have been diagnosed with multiple chemical sensitivities (MCS). On a random state-wide survey, those reporting chemical sensitivities were equally distributed in the four quadrants of the state, occurred equally in urban and rural areas, and was reported more frequently among Native Americans (27%).

Chemically sensitive individuals can be made extremely ill from exposures to even very small amounts of pesticides, such as those that occur with pesticide drift. It is not unusual to develop prolonged nausea, vomiting, diarrhea, shaking, weakness, severe headache, muscle and joint aches, and/or difficulty breathing. For example, I took my chemically sensitive housemate to the hospital when she began vomiting blood after our neighbor sprayed the herbicide Roundup in her yard.

Herbicides Do Not Just Affect Plants:

There is a common misconception that because herbicides are intended to harm plants, they will not harm humans or animals. BASF's promotional material for Arsenal (imazapyr) states that because the active ingredient "works on an enzyme found only in plants," it is "not toxic to humans, wildlife or fish." This is an inaccurate and gross oversimplification of the true situation. All pesticides (including herbicides), like medications, have a myriad of nontarget side effects. Thus an herbicide, for example, intended to target plant enzymes may also adversely affect mammalian enzymes or other bodily functions. In addition, animals may be injured by the "inert" ingredients or manufacturing impurities found in pesticide products. Perhaps one of the most well-known example of human injury from an herbicide exposure is the Viet Nam veterans who were made sick by exposure to Agent Orange.

Arsenal (imazapyr):

Imazapyr is known to have the following health and environmental effects. It is corrosive to eyes. Adverse effects found in laboratory animals after chronic exposure to imazapyr include fluid accumulation in the lungs of female mice, kidney cysts in male mice, abnormal blood formation in the spleen of female rats, an increase in the number of brain and thyroid cancers in male rats, and an increase in the number of tumors and cancers of the adrenal gland in female rats.

Imazapyr can persist in soil for over a year. It can damage plants at concentrations that are not detectable by laboratory analysis. Imazapyr moves readily in soil. It has contaminated surface and ground water following aerial and ground forestry applications. Over a half-dozen weedy plant species have developed resistance to imazapyr. [Imazapyr fact sheet, Journal of Pesticide Reform, Fall 1996, Vol. 16, No. 3]

Roundup (glyphosate) and Garlon (triclopyr), herbicides that are also being used in salt cedar projects pose their own health and environmental risks.

Violation of Water Laws:

According to the New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC), it is against the law to introduce toxic pollutants into state waters except as provided for in the standards. There is currently no allowance for pesticides to be applied to the waters of New Mexico (except for piscicide use approved by the Water Quality Control Commission). Thus, with this one exception, all the aquatic pesticide use being done in New Mexico is illegal.

The federal Clean Water Act prohibits point source deployment of pollutants into navigable waters of the U.S. without obtaining a National Pollutant Discharge Elimination System (NPDES) permit. Since salt cedar spraying along waterways undoubtedly contaminates the water, NPDES permits are required, and prior spraying without such permits has violated the Clean Water Act.

Thank you for allowing me to comment on the New Mexico Statewide Policy and Strategic Plan for Non-Native Phreatophyte/Watershed Management

Cc: Governor Bill Richardson