CALIFORNIA COASTAL COMMISSION
South Coast District Office
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Long Beach, CA 90802-4302
(562) 590-5071

Th13b

CDP 5-20-0017 (CITY OF LONG BEACH, MARKETPLACE MARSH)
DECEMBER 10, 2020

CORRESPONDENCE

Comments for Item 13b 12/10/20

anngadfly@aol.com <anngadfly@aol.com>

Thu 12/3/2020 7:12 PM

To: SouthCoast@Coastal <SouthCoast@coastal.ca.gov>; Revell, Mandy@Coastal <Mandy.Revell@coastal.ca.gov>; Rehm, Zach@Coastal <Zach.Rehm@coastal.ca.gov>; Hudson, Steve@Coastal <Steve.Hudson@coastal.ca.gov>
Cc: achris259@yahoo.com <achris259@yahoo.com>; cmoore@algalita.org <cmoore@algalita.org>; ksharper01@cs.com <ksharper01@cs.com>; rebrobles1@gmail.com <rebrobles1@gmail.com>; vbickf123@aol.com <vbickf123@aol.com>; larkinstall63@gmail.com <larkinstall63@gmail.com>

3 attachments (1 MB)

Ecological Risk Assessment of the Proposed Use of the Herbicide Imazapyr to Control Invasive Cordgrass in Estuarine Habitat of Washington State October 30, 2003.pdf; Avenger herbicide.pages; Tule Grass removal .jpeg;

To: CA Coastal Commissioners and Staff:

From: Sierra Club Los Cerritos Wetlands Task Force

Re: Item 13b. *Application of City of Long Beach to remove approx. 60,000 sq.ft. of native and nonnative vegetation within Marketplace Marsh to increase water circulation and inhibit mosquito reproduction, maintenance plan of limited and periodic removal of native and non-native plant overgrowth utilizing hand tools and herbicide outside of avian breeding season for term of five years in City of Long Beach, Los Angeles County. (MR-LB)*

The Sierra Club Los Cerritos Wetlands Task Force agrees that there is a need to remove some of the Tules/Cattails from the Marketplace Marsh. Our concerns are **the methods and the amount of vegetation to be removed.**

The report states Marketplace Marsh is an environmentally sensitive habitat area that provides habitat for many native animals including hundreds of bird species and numerous special status faunal species. Commission staff ecologist, Dr. Jonna Engel determined that Marketplace Marsh is ESHA based on the rarity of coastal freshwater marsh habitats and the number of sensitive species that the marsh supports. As ESHA the project must comply with Section 30240 of the Coastal Act.

Section 30107.5 of the Coastal Act, defines an environmentally sensitive area as: "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

A. *The use of insecticides, herbicides, anti-coagulant rodenticides or any toxic chemical substance that has the potential to significantly degrade biological resources shall be **prohibited**, except where necessary to protect or enhance the habitat itself, such as for eradication of invasive plant species or habitat restoration, and **where there are no feasible alternatives.***

B. ***that would result in fewer adverse effects to the habitat value of the site.** Application of such chemical substances shall not take place during the winter season or when rain is predicted within a week of application.*

As chemicals cannot be applied during the winter because of rain, nor during the spring and summer because of nesting season, it appears this project cannot take place until next fall. This gives the City time to develop a feasible, best practice alternative.

We would argue there are feasible alternatives to using herbicides such as Imazapyr (see attachment). After the hand cutting of the tules, the roots could be sprayed with a natural herbicide, such as Avenger, which is also EPA approved, but does no harm to surrounding plants or wildlife. (see attachment)

We are especially concerned that Imazapyr remains in the plants for up to a year and can transfer to the root systems of the Willows growing next to the Tules on the edge of the marsh and possibly the Southern Tar Plants east of the marsh.

We are also concerned by the excessive amount of Tules to be removed. When taking out 60,000 sq. feet of vegetation, very little habitat remains for the birds, fish, and insects which use the Tules. (see attached map)

Marketplace Marsh is part of the Los Cerritos Wetlands, a Traditional Tribal Landscape within the Sacred Site of Puvungna. The tules to be removed and treated with herbicide are a tribal cultural resource not readily available to tribal members seeking to maintain and engage in cultural practices and activities. However, neither Tongva nor Acjachemen tribal representatives were consulted by the project applicant or Coastal Commission staff.

Michele Castillo, Acjachemen, piloting tule boat made by tribal members and friends into Los Cerritos Wetlands

We request that instead of a 5 year permit, a one year pilot program be done. Remove the reeds by hand and then use Avenger, or some other natural herbicide, on the roots. We also request that at least half of the Tules/Cattails/Bullrushes be left in place each year.

Sincerely,

Ann Cantrell and Anna Christensen, Co-chairs, Sierra Club Los Cerritos Wetlands Task Force

SHOP NOW

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PRODUCT HIGHLIGHTS

- Fast acting – visible results in less than 2 hours
- Highly biodegradable – dissipates quickly
- Non-toxic and can be used in areas near people, pets and wildlife
- Works in cool & cloudy conditions (as low as 40º F)
- Does not stain brick, concrete or pavement

- Emulsion technology – visually references your spray target
- Sprayed areas can be planted within hours
- Made from oranges, lemons and other citrus fruits. A pleasant citrus aroma.
- EPA registered & approved
- Controls most weeds, grasses and broadleaves including: Spurge, Sowthistle, Redroot Pigweed, Tumbling Pigweed, Annual Bluegrass, Shepherd's Purse, Common Purselane, Common Chickweed, Clover, Hairy Fleabane, Crabgrass, Smooth Crabgrass, Dandelion, Whitestem Filaree, Bermuda Grass, Bindweed, Shepherds Purse, Prickly Lettuce, Lambsquarters and Little Mallow
- Organic Materials Review Institute (OMRI) listed product. OMRI provides organic certifiers, growers, manufacturers, and suppliers an independent review of products intended for use in certified organic production, handling, and processing
- Approved for Use in Organic Gardening by the U.S. Department of Agriculture's (USDA) National Organic Program (NOP) Rule
- Approved by the Washington Organic Food Program (WSDA)
- D-Limonene is Generally Recognized As Safe (GRAS) by the FDA – essentially no measurable toxicity for certain uses
- USDA IR-4 Project participant
- Registered for sale in all 50 United States except South Dakota, Washington D.C., as well as the U.S. Virgin Islands and Puerto Rico
- Patented formula: US 8273687 B2, US 8153561 B2
- Made in the USA

Avenger Organics Avenger Natural Weed Killer is a non-selective, post-emergence herbicide that quickly and effectively kills weeds, grasses and broadleaves without causing harm to the environment. The active ingredient d-limonene (citrus oil) naturally strips away the waxy plant cuticle, causing it to dehydrate and die. University and independent testing results prove that Avenger Weed Killer is as effective, but faster acting when compared against leading synthetic herbicides. When tested against non-organic 'natural' herbicides that contain vinegar (acetic acid), citric acid, clove oil or fatty acids (soap), it is more effective with quicker results.

Great for use in & around: Gardens, Spot Control in Lawns, Shrubs, Flower Beds, Driveways, Sidewalks, Patios, Borders, Outside Walls, Mulch Beds, Gravel Beds, Mature Trees & Ornamentals, Greenhouses, Fencerows, Foundations, Buildings, Golf Courses, Athletic Fields, Parks & Recreation Areas, Bike & Hiking Trails, Kennels and Animal Enclosures.

Available In:

24 oz. Ready To Use (RTU) Spray
1 Gallon RTU Spray
32 oz. Concentrate
1 Gallon Concentrate
5 Gallon Concentrate Pail
55 Gallon Concentrate Drum (Call for pricing)

Avenger Organics Avenger Natural Weed Killer

Imazapyr - Ecological Risk Assessment of the Proposed Use of the Herbicide Imazapyr to Control Invasive Cordgrass in Estuarine Habitat of Washington State, October 30, 2003

Imazapyr is slow-acting and is generally most effective during post emergence axillary budding (Hanlon and Langeland 2000). Plants stop growth initially in the roots and continue in the above ground portions, with complete death occurring approximately one month after treatment, depending on environmental conditions (Cox 1996).

There are also reports of imazapyr “leaking” out of the roots of treated plants and impacting surrounding native vegetation.

Studies reviewed by the EPA concluded that imazapyr technical is corrosive to the eyes and can cause irreversible eye damage (Cox 1996).

Notwithstanding, the toxicological risks to shorebirds must be considered. Unfortunately, we found no data to address the potential toxicity of imazapyr to shorebirds.

Imazapyr has not been thoroughly tested for chronic or sub-lethal effects with a wide variety of aquatic organisms

Native salt marsh plants and algae resident to the estuarine environments where imazapyr could be applied have the potential to be negatively affected by the broad spectrum herbicide, and a range of studies by both the product registrant and others document this possibility.

It is not surprising that risks to non-target aquatic vegetation appear to pose the most significant risk element from the potential use of imazapyr, as the herbicide has been engineered as a broad- spectrum agent to control unwanted plant growth.

Studies pertaining to the effect of imazapyr on aquatic or water-dependent species other than fish are limited. No studies examining the toxicity of imazapyr to amphibians and reptiles were discovered in our literature review. No studies on the toxicity of imazapyr to marine fish typical of those areas where invasive Spartina is distributed in Washington State have been conducted.

Specific data on the toxicity of imazapyr to sediment-associated organisms typical of north- temperate marine environments is generally lacking and represents a significant data gap.

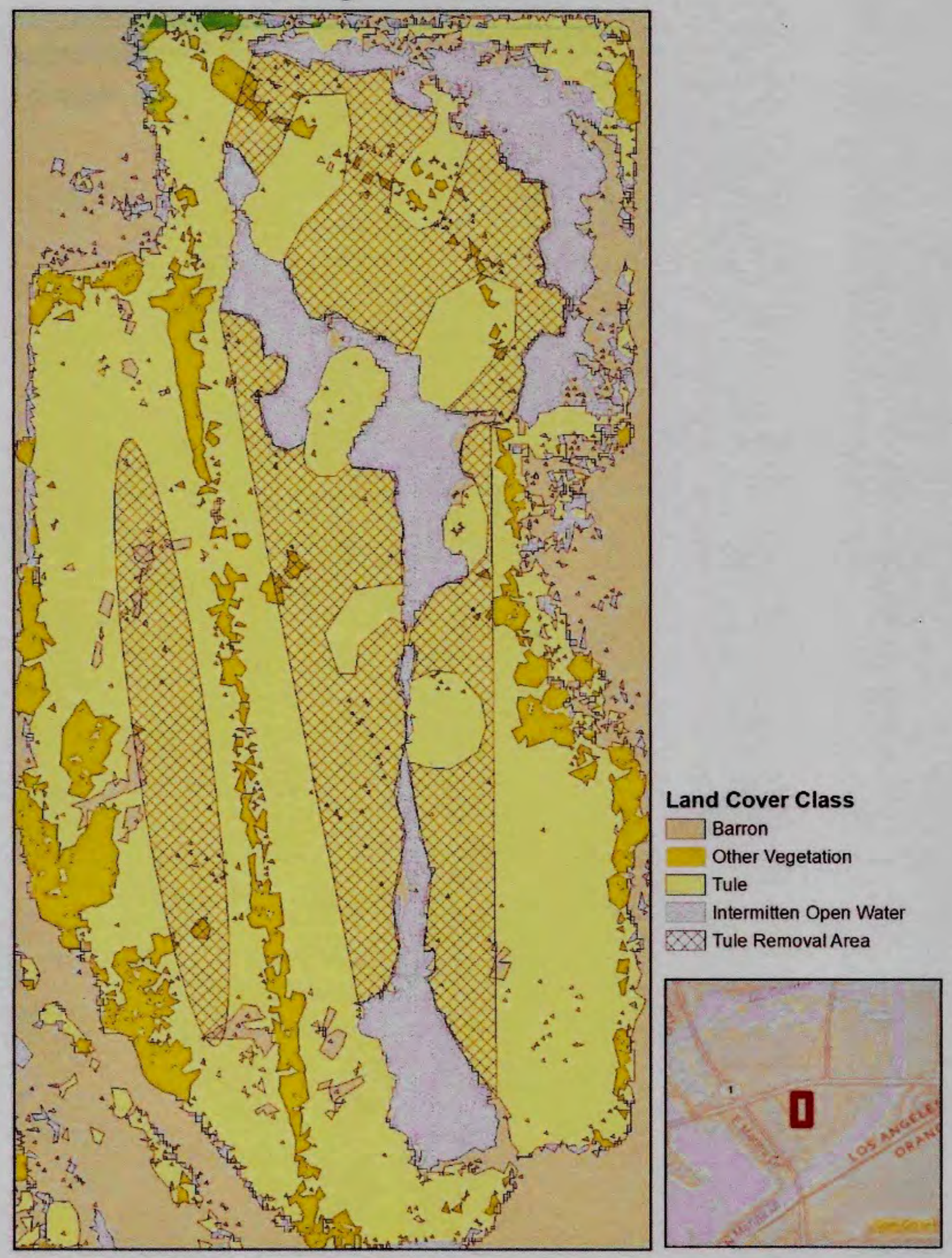
Imazapyr is highly mobile, persistent in soils, and is a broad-spectrum herbicide. Although risks to animals from imazapyr use are insignificant, its use can cause significant impacts to non-target vegetation if inappropriately applied.

It should therefore be applied only to target species, avoiding drift or seepage to non-target species and sediment through observation of weather patterns such as high rains or wind.

Imazapyr should be used primarily in areas where total vegetation control or eradication is desired, or in isolated spot applications due to reports of its potential to “leak” out of target plant roots into soil that contains non-target plants.

Figure 2, below, shows the plan for vegetation removal and control.

Proposed Tule Grass Removal at Marketplace Marsh, Long Beach, CA



California Coastal Commission
CDP 5-20-0017
Exhibit 2

Documentation on Imazapyr per your request

Yahoo <achris259@yahoo.com>

Fri 12/4/2020 10:40 AM

To: Rehm, Zach@Coastal <Zach.Rehm@coastal.ca.gov>; Revell, Mandy@Coastal <Mandy.Revell@coastal.ca.gov>; Ann Cantrell <anngadfly@aol.com>

7 attachments (6 MB)

Imazaphyr US EPA.pdf; Imazaphyr US EPA.pdf; ImazapyrNightmare.pdf; Management of Tules and Organic Sediments.htm; Surprise discovery of rare plant at Norfolk 'ghost pond' - BBC News.htm; tule info.pdf; Wild Indigenous Healthcare_ Imazapyr_ Frill Treatments, Cut Stump Application, Hack and Squirt.htm;

The Los Cerritos Wetlands Task Force supports the Precautionary Principle. Historically, many environmentally harmful activities were stopped only after they resulted in environmental degradation or serious harm to many people. The precautionary principle is an approach characterized by minimizing or eliminating potential hazards at the onset of an activity instead of the approach that determines an ‘acceptable level of harm.’

You asked for source info. Here are some of the documents available online.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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TOXIC SUBSTANCES

PC Code No: 128821,
128829
DP Barcode: D313607

September 30, 2005

MEMORANDUM

SUBJECT: EFED Ecological Risk Assessment Supporting the Reregistration Eligibility Decision for the Use of the Herbicide, Imazapyr, in Previously Registered Non-Agricultural and Horticultural Settings, and on Clearfield Corn

CAS Registry Number: 81510-83-0
Company: BASF Corporation

FROM: Stephen Carey, Biologist
Lucy Shanaman, Chemist
Pamela Hurley, Toxicologist
Environmental Risk Branch III
Environmental Fate and Effects Division, 7507C

THRU: Daniel Rieder, Branch Chief
Environmental Risk Branch III
Environmental Fate and Effects Division, 7507C

TO: Mika Hunter, Chemical Review Manager
Special Review and Registration Division, 7508C

This memorandum transmits the ecological and environmental risk conclusions for the herbicide, imazapyr, and the Environmental Fate and Ecotoxicity Assessments for its proposed uses on: Clearfield corn, forestry uses, aquatic and terrestrial non-cropland uses including manufacturing sites and right-of-ways, pasture and rangeland, residential non-food use, and non-residential turf. Imazapyr is applied as a foliar spray or pellet product for the control of unwanted vegetation. In general, the labeled uses for different products containing imazapyr have single maximum annual application rates between 0.9 and 1.5 pounds ae/acre for terrestrial and aquatic sites and 0.5 to 1.5 lb ae/acre with 1-2 applications per 10 years (brush) for granular uses. While labels for the

registered products allow application with backpack sprayers, which would minimize the treated area, in many cases aerial application is also permissible. Maximum annual application rates for uses of imazapyr on Clear Field[1] corn is much lower at 0.014 pounds ae/acre.

Environmental Fate

Imazapyr is an anionic, organic acid that is non-volatile, degrades through photolysis in clear shallow waters, and is both persistent and mobile in soil. Imazapyr is mainly present in anionic form at typical environmental pHs, and the behavior of the acid and salt forms are expected to be similar. Soil to water partitioning coefficients (K_d) for imazapyr are low (ranging from 0.04 to 3.4), indicating that imazapyr will be mobile in surface waters. Imazapyr is soluble in water and has the potential to leach into ground water. For anionic compounds, sorption would tend to diminish with increasing environmental pH. Since imazapyr is not expected to sorb strongly to either soils or sediments, it is not expected to accumulate in benthic systems or bioconcentrate in fish. Imazapyr is not volatile and is stable to aerobic and anaerobic degradation. Imazapyr is also stable to hydrolysis, but is susceptible to aqueous photolysis with reported half-lives of 2.5 to 5.3 days. The two major photodegradates are 2,3-pyridinecarboxylic acid (CL 9140, 22.7%) and 7-hydroxy-furo[3,4-b]pyridin-5(7H)-one (CL 119060, 9.7%). These transformation products are less persistent than the parent, imazapyr, under aerobic aquatic conditions (half-lives 2.5 to 5.3 days). There are no toxic residues of concern identified for the imazapyr transformation products, and none were considered in this ecological risk assessment.

Risk Conclusions

The use of imazapyr in accordance with the label (total annual application rate, 0.014 lbs ae/acre for agricultural uses and 0.5 to 1.5 lbs ae/acre for non-food crops) results in adverse effects for listed and non-listed aquatic vascular plants from the high non-food rate, but not for aquatic non-vascular plants. Adverse effects are expected for listed and non-listed terrestrial monocots and dicots in dry and semi-aquatic areas. Non-listed species are not expected to be adversely effected from ground application spray drift alone.

Risks to Aquatic Organisms

Fish and Invertebrates

This screening risk assessment indicates that there is minimal risk of direct acute effects to fish and aquatic invertebrates at maximum application rates. In addition, there are no chronic risks to fish and invertebrates; however, there is an uncertainty for estuarine/marine fish and invertebrates, since no toxicity data were available to observe the prolonged effects of imazapyr to estuarine/marine fish and invertebrates. Consequently, fish and invertebrates inhabiting surface waters adjacent to an imazapyr treated field would not be at risk for adverse acute and/or

[1]Clear Field is a variety of corn that has been developed to be resistant to the herbicidal effects of imazapyr.

chronic effects on reproduction, growth and survival when exposed to imazapyr directly or in residues in surface runoff and spray drift as a result of ground and/or aerial spray application. Risk to benthic organisms is also not likely based on the available toxicity data and that imazapyr is not expected to accumulate in benthic systems.

Plants

Toxicity studies indicate that imazapyr acid is highly toxic to plants, and expected to exert detrimental effects to aquatic vascular plants. Imazapyr acid, and its salt, are not expected to exert detrimental effects to listed and non-listed non-vascular plants, even at the maximum application rate. Both non-listed and listed aquatic vascular plants are at risk for the terrestrial non-cropped spray and granular uses, and for the aquatic non-cropped uses, at the highest allowable application rate. Both non-listed and listed aquatic vascular plants are not at risk for use of imazapyr on Clearfield corn. Aquatic vascular plants inhabiting surface waters adjacent to a treated field, and those exposed via direct application to water, would be at risk for adverse effects to growth and development as a result of the labeled uses of the pesticide.

Risks to Terrestrial Organisms

Birds

Imazapyr acid is categorized as practically non-toxic to avian species. Neither mortality nor clinical signs of toxicity were observed in any of the acute oral and dietary toxicity studies. The acute risk to birds following either broadcast granular application or spray application is expected to be low because the highest dose-based environmental exposure concentrations (EECs) are one quarter (broadcast spray) to one-half (granular application) of the highest concentration tested in the acute studies which produced no mortalities and no clinical signs of toxicity. The difference between the highest dietary EEC and the highest concentration tested in the acute dietary studies is even greater. Chronic avian reproduction studies indicated no evidence of adverse reproductive effects. The chronic LOC for birds was not exceeded for any of the registered uses. Therefore, the chronic risk for birds is also expected to be low following exposure to imazapyr acid at maximum application rates.

Mammals

Imazapyr acid is categorized as practically non-toxic to small mammals. Again, neither mortality no clinical signs of toxicity were observed in the acute oral study. The acute risk to mammals following either broadcast granular application or spray application is expected to be low because the highest dose-based EECs are 0.03 (broadcast spray) to 0.1 (granular application) of the highest concentration tested in the acute study which produced no mortalities and no clinical signs of toxicity.

The chronic mammalian reproduction study indicated no evidence of adverse reproductive effects. The chronic LOC for mammals was not exceeded for any of the registered uses. Therefore, the chronic risk for mammals is expected to be low following exposure to imazapyr

acid at maximum application rates.

Terrestrial Non-target Insects

The available terrestrial toxicity data on honey bees suggests that imazapyr is practically non-toxic to bees. It is unlikely that there will be significant risk to terrestrial insects in the direct treatment area. The potential for imazapyr to have adverse effects on pollinators and other beneficial insects is low.

Plants

The results of this screening risk assessment indicate that imazapyr use on non-cropped areas and on Clearfield corn applied at the labeled concentration rates as a liquid spray for ground or aerial applications presents a risk to non-target plants for some distance from the application site. Imazapyr is readily absorbed through the foliage and roots of plants. Consequently, it could be injurious to non-target plant species by drift, runoff, or leaching to roots. Damage to non-target plants may be sufficient to prevent the plant from competing successfully with other plants for resources and water. Low-level exposure to non-target crops can cause severe reductions in yield. Imazapyr increases a plant's susceptibility to disease and can disrupt nutrient cycling in soil by inhibiting the ability of enzymes to break down cellulose and thereby, decompose plant material. Listed plant species may be especially impacted by exposure to imazapyr because of the impact of the loss of a few individuals to the population.

For the high and low application rates by ground and aerial spray for non-food uses, the listed and non-listed monocots and dicots (with the exception of monocots receiving only spray drift from ground application at the low application rate) located adjacent to treated areas, and inhabiting semi-aquatic areas are at risk.

The use of imazapyr on Clearfield corn present a risk to non-listed terrestrial plants located in semi-aquatic areas, but does not present a risk for terrestrial plants in dry areas. Listed dicot plants inhabiting adjacent treated areas are at risk from the use of imazapyr on Clearfield corn by both ground and aerial application. In dry areas, monocots are not at risk from spray drift alone.

When imazapyr is applied directly to surface waters for the control of aquatic plants, both non-listed and listed species of monocots and dicots inhabiting semi-aquatic areas are at risk.

For granular, non-cropped terrestrial uses, both non-listed and listed species of monocots and dicots located adjacent to treated areas, or inhabiting semi-aquatic areas, are at risk.

Listed Species

Both acute and chronic risk are considered in the screening-level assessment of pesticide for listed species. Imazapyr is expected to pose a direct risk to listed plant species. Indirect risks are expected for all other listed animal species that are dependent upon plants for survival and other reproductive factors.

Outstanding Data Requirements

The set of data available for imazapyr is adequate to conduct a Tier I screening-level risk assessment for purposes of reregistration. However, not all guidelines are completely fulfilled. See Appendix I for guideline numbers.

In order to reduce uncertainties associated with the toxicity of imazapyr's degradates, toxicity studies with aquatic and terrestrial animals would be useful.

Summary of Major Uncertainties and Data Gaps in Imazapyr Assessment		
Selected Uncertainty	**Value of Additional Testing**	**Comment**
Aquatic Assessment		
Biotic metabolism in soil and water	Low	Only one half-life value is available for both aerobic and anaerobic soil metabolism, and for anaerobic aquatic metabolism. Normally, aquatic modeling inputs would be adjusted by an appropriate factor in order to account for natural soil variability not captured by only one data point. However, imazapyr was reported to be stable in the one soil system tested, so little added value is expected by requesting data from the additional two test systems.
Terrestrial Assessment		
Terrestrial plant Seedling Emergence - Tier II	High	Guidelines only partially fulfilled. Problems with overcrowding and inadequate reporting. Tier II Seedling Emergence Studies needed with 10 species using the TEP (salt plus identified adjuvant). Guideline 123-1(a)
Terrestrial plant Vegetative Vigor - Tier II	High	Guidelines only partially fulfilled. Problems with overcrowding and inadequate reporting. Tier II Vegetative Vigor Studies needed with 10 species using the TEP (salt plus identified adjuvant). Guideline 123-1(b)

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The use of imazapyr on Clearfield corn present a risk to non-listed terrestrial plants located in semi-aquatic areas, but does not present a risk for terrestrial plants in dry areas. Listed dicot plants inhabiting adjacent treated areas are at risk from the use of imazapyr on Clearfield corn by both ground and aerial application. In dry areas, monocots are not at risk from spray drift alone.

When imazapyr is applied directly to surface waters for the control of aquatic plants, both non-listed and listed species of monocots and dicots inhabiting semi-aquatic areas are at risk.

For granular, non-cropped terrestrial uses, both non-listed and listed species of monocots and dicots located adjacent to treated areas, or inhabiting semi-aquatic areas, are at risk.

Listed Species

Both acute and chronic risk are considered in the screening-level assessment of pesticide for listed species. Imazapyr is expected to pose a direct risk to listed plant species. Indirect risks are expected for all other listed animal species that are dependent upon plants for survival and other reproductive factors.

Outstanding Data Requirements

The set of data available for imazapyr is adequate to conduct a Tier I screening-level risk assessment for purposes of reregistration. However, not all guidelines are completely fulfilled. See Appendix I for guideline numbers.

In order to reduce uncertainties associated with the toxicity of imazapyr's degradates, toxicity studies with aquatic and terrestrial animals would be useful.

Summary of Major Uncertainties and Data Gaps in Imazapyr Assessment		
Selected Uncertainty	**Value of Additional Testing**	**Comment**
Aquatic Assessment		
Biotic metabolism in soil and water	Low	Only one half-life value is available for both aerobic and anaerobic soil metabolism, and for anaerobic aquatic metabolism. Normally, aquatic modeling inputs would be adjusted by an appropriate factor in order to account for natural soil variability not captured by only one data point. However, imazapyr was reported to be stable in the one soil system tested, so little added value is expected by requesting data from the additional two test systems.
Terrestrial Assessment		
Terrestrial plant Seedling Emergence - Tier II	High	Guidelines only partially fulfilled. Problems with overcrowding and inadequate reporting. Tier II Seedling Emergence Studies needed with 10 species using the TEP (salt plus identified adjuvant). Guideline 123-1(a)
Terrestrial plant Vegetative Vigor - Tier II	High	Guidelines only partially fulfilled. Problems with overcrowding and inadequate reporting. Tier II Vegetative Vigor Studies needed with 10 species using the TEP (salt plus identified adjuvant). Guideline 123-1(b)

The Plant Doctor's LANDSCAPE TIPS

By David L. Roberts, Ph.D., *Senior Academic Specialist, College of Agriculture and Natural Resources, Michigan State University*

IMAZAPYR NIGHTMARE ON ELM STREET

"Forgive Them . . . For They Know Not What They Do"

INTRODUCTION

As if we didn't think the problems with Imazapyr could get any worse, they've gotten a lot worse! Following are some nightmarish stories of Imazapyr and plants. The names and places have often been changed to protect the innocent . . . and the guilty.

PHRAGMITES CONTROL BY HELICOPTER

In a bay somewhere along Michigan's extensive coast line, local government officials decided to use the dynamic duo, glyphosate and Imazapyr, for Phragmites control (Photo 1A). The company that won the bid decided to apply the dynamic duo by helicopter. I may not be an expert in the application of herbicides by aerial means, but drift should be a concern when applying any pesticide. My practical nature would register caution of drift from a helicopter's rotor wash. Indeed, many trees and landscapes were affected by this herbicide application (Photo 1B). However the primary objective seems to have worked – Phragmites is largely gone.

Photo 1A: Glyphosate and Imazapyr are used for invasive plant management in many areas, even along waterways where Phragmites is common.

Photo 1B: At this location along the shoreline of one of Michigan's Lakes, Imazapyr and glyphosate, the dynamic duo, were applied by helicopter. Many trees and shrubs were killed and many remain in hopeful recovery.

POLARIS, THE NUCLEAR OPTION FOR MANAGEMENT OF INVASIVES AT HISTORIC SITES

"Polaris" may be a name ascribed to the North Star, residing in a unique association with the Big Dipper in the sky for many of us peace lovers. But Polaris is also the name assigned to the nuclear tip of the U.S.'s intercontinental ballistic missile. In the world of herbicides, Polaris is also a trade name for Imazapyr, which in some cases may be more closely related to the nuclear option than the North Star. Apparently at an historic site (in the U.S.) managed by the National Park Service, Polaris was specified for management of invasive plants such as buckthorn, etc. Unfortunately, the Park Service and contract applicators didn't expect the collateral damage to historic trees (Photo 2), some of which are gradually recovering while some are not. The site shall remain anonymous . . . er, uh, hmmm . . . for obvious reasons of national security and great sensitivity.

Photo 2: At a national historic site, Polaris (Imazapyr) was specified by the National Park Service for suppression of invasive plants. Unfortunately, many historic trees were harmed after application by the arborist who won the bid. Needless to say, the Park Service is not happy . . .

OAK WILT OR NOT???

I was contacted by an arborist who believed he had encountered another Oak Wilt site in Shelby Twp. Problem was, it didn't feel quite right to him for Oak Wilt (Photo 3A). So, I volunteered to view the site. Sure enough, as I arrived at the site, I

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Photo 3A: While these red oaks appeared to have suddenly died, possibly from Oak Wilt, the real culprit was an herbicide containing Imazapyr, applied to the driveway the year before. Although red oaks are highly sensitive, white oaks (background, center) didn't appear to be affected at all.

The Plant Doctor's LANDSCAPE TIPS

IMAZAPYR NIGHTMARE ON ELM STREET

"Forgive Them . . . For They Know Not What They Do"

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witnessed two dead red oaks, one on either side of the drive, just as the arborist described. On trees more distant from the drive, I spied the typical damage caused by Imazapyr herbicide (Photo 3B). Apparently a landscape company had applied an herbicide to the driveway for long-term weed control the previous year. There's only one thing as deadly as Oak Wilt on red oaks . . . Imazapyr.

SUSAN'S LOVELY HEDGE

Susan, who lives near Rochester Hills, had a lovely hedge that ran the entire length of her back property line (Photo 4A). She called Bill, her landscape and lawn guy, to find out why the hedge seemed to be dying. Bill wasn't quite certain of the cause. So, he called me. Such decline symptoms could be caused by a variety of factors . . . such as winter injury, root rot, stem canker diseases, etc. When I walked up and could see the symptoms on the hedge close-up, I knew immediately that the culprit was Imazapyr (Photo 4B). I asked Susan if someone had applied any herbicides on the rock mulch for weed control the year before. She replied that she had. I asked to see the herbicides she had applied (Photo 4C). When I told her what the problem was, she begin to cry. I tried to soothe her by saying that the damage was from last year's application . . . that because the stem's cambium tissue was still green, many of them might recover with time. Then, she began to cry even more emotionally. I asked her what was wrong. She said she had just made another application.

Photo 3B: The telltale sign of Imazapyr damage is stunted, chlorotic foliage trying to "push growth". These symptoms may not always be present if the trees or shrubs are severely affected.

Photo 4A: Susan's previously magnificent hedge appeared to be dying after application of Roundup Extended Control and Roundup 365. Because she had applied another treatment slightly before my visit, we can expect the hedge to decline further next year.

Photo 4B: Note the telltale symptoms of stunted, bushy appearance of Imazapyr effects on the hedge, while (typically) other portions of the hedge appear unaffected . . . also indicating uneven application and uneven uptake by the plant.

Photo 4C: Susan's arsenal for weed control was fairly substantial.

Photo 5A: These declining maple trees straddling the walkway in Petoskey's Bay Front Park are gradually being replaced with ornamental pear trees. Perhaps the city doesn't know why the maples have declined? Some of the trees not yet dead exhibited signs of Imazapyr uptake.

Photo 5B: A clue for the culprit of the maple decline can be seen in this photo – small maple seedlings have been treated with an herbicide. It is not uncommon for tree grate areas and surrounding pavers to be treated with herbicides for weed suppression.

Photo 5C: Another clue that something is wrong in the paver area is that the maples in the lawn area appeared perfect. Normally, we'd expect to see some herbicide effects on trees from lawn herbicides.

PETOSKEY'S BAY FRONT PARK

"Sittin' on the Dock of the Bay, watching the tide roll away." Well, not quite. Earlier this year, I taught a three-hour workshop on Oak Wilt and other tree maladies for arborists and landscapers in the Petoskey area. The lecture portion was followed by a landscape tour of downtown Petoskey. At Bay Front Park, many of the maple trees straddling the paver path from downtown to the bay were declining (Photo 5A). Many of the attendees thought the symptoms appeared similar to Verticillium Wilt. As we continued to discuss the matter, I noted dead tree seedlings in the grates beneath the maple trees (Photo 5B) . . . and subsequently the telltale signs of stunted yellow, foliage on the branches that still exhibited some life. That's right, Imazapyr. Note that the trees in the lawn areas were perfectly healthy (Photo 5C).

MULCH MADNESS

An arborist asked me to visit Dan's property near Belleville, MI. Dan's trees and shrubs exhibited severe damage typical of herbicide injury (Photo 6A). Dan was certain that the problem stemmed from the application of bagged mulch (Photo 6B), which already contained pre-emergence herbicides and which he had put around every tree and shrub on his property. As we discussed how to test for herbicides in his left-over two bags of mulch in his pole barn, I looked over near his workbench and spied some herbicide containers (Photo 6C). I asked Dan where the Ortho Ground Clear was used. He replied that his nephew had applied it to the driveway (Photo 6D). I asked if his nephew could also have applied it to the mulch rings around his trees and shrubs. Dan replied that he didn't think so but that he didn't know for certain. Yep, testing is underway . . .

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Photo 6A: Dan noticed severe damage to his trees and shrubs after he had applied mulch from bags, which already contained pre-emergent herbicides.

Photo 6B: Dan had two bags of the mulch left over and we discussed how to test it for other herbicides.

Photo 6C: Subsequently, I spied several jugs of herbicides near his work bench in his pole barn. Dan claimed his nephew had applied the Ortho Ground Clear to the driveway but didn't think the herbicide was applied to mulch rings around trees and shrubs.

Photo 6D: Note the damage to the lawn from the water-transported movement of Imazapyr herbicide away from its target of application (driveway).

The Plant Doctor's LANDSCAPE TIPS

IMAZAPYR NIGHTMARE ON ELM STREET

"Forgive Them . . . For They Know Not What They Do"

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DEAD TREES ALONG THE RIVER

A retired couple decided to "spruce up" their back yard, which is along the banks of the Clinton River. So, they hired a landscape company to apply mulch, which was also treated after distribution with an herbicide. The following year, many of the trees in the couple's back yard and on the banks of the river did not leaf-out (Photo 7). I was called in and immediately determined that Imazapyr was the culprit. With advice to wait and see, most of the trees did not recover after two years. The landscape company's insurance is paying for all damages.

LOGGERS GET READY

Ellen, who lives in the Gull Lake area not far from the MSU Kellogg Biological Station, applied an herbicide to her patio and brick walkway near her home. A year later, several of her large trees, especially the walnuts, did not leaf-out . . . or leafed-out very sparsely (Photo 8). An arborist correctly diagnosed the problem after learning about Imazapyr while attending one of my lectures (Yea!!!). In case her trees do not recover, Ellen has already obtained bids for the value of the walnut trees whose trunks approach 2 ½-3 feet dbh and are straight as an arrow without any limbs for 20-25 feet or so.

CONCLUSIONS

There are several important things to know about Imazapyr and herbicide products containing Imazapyr. Imazapyr damage typically appears the year after application. Labels are conspicuously vague about precautions, especially for the homeowner market (Photo 9). Imazapyr lasts at least a year and tends to move from its application target in water, either laterally or downward into root zones of trees. About half of the Imazapyr damage I see is due to professional applicators. Imazapyr symptoms are fairly diagnostic (Photos 2. 3B, 4B & 6A). Some trees are more sensitive than others; for example, red oaks and walnuts are highly sensitive while white oaks and maples tend to be less sensitive. As I always say during my lectures and workshops for professionals, "if you haven't seen Imazapyr damage yet, you've missed it." L

Please feel free to contact me with any suspected, interesting cases of herbicide damage to trees, shrubs and landscapes at robertsd@msu.edu.

The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.

Photo 7: A couple who lived along the Clinton River decided to hire a landscape company to apply mulch to their back yard. The company subsequently treated the mulch with a herbicide . . . you guessed it, Imazapyr . . . for long-term weed control. Although many red oaks died, the oak in the center is still hanging on three years after the application.

Photo 8: Ellen applied Roundup 365 to her patio and brick walk (lower right in photo). The next year, some of her walnuts were severely affected. Loggers are standing by hoping to be able to harvest the trees. Roundup 365 contains 0.08% Imazapic. It's hard to believe that such a low concentration applied to such a small area (the walk) would do so much damage to a large tree.

Photo 9: Most of the Imazapyr-containing products do a great job of marketing, regarding where to apply the herbicide and how long you can expect weed control. To find the precautions about application over or in the vicinity of tree roots is rather inconspicuous or lost in the fine print, which many people do not bother to read.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

HARDSTEM BULRUSH

Schoenoplectus acutus (Muhl. ex Bigelow) A. Löve & D. Löve

Plant Symbol = SCAC3

Contributed by: USDA NRCS Idaho Plant Materials Program

Hardstem bulrush. Photo by Derek Tilley, USDA-NRCS.

Alternate Names

Common Alternate Names: tule
Scientific Alternate Names: *Scirpus acutus*

Uses

Wildlife:
Livestock rarely use this species when the area is flooded. They will use it as roughage or in the winter under heavy snow cover because the stems are often protruding above the snow bank. Forage value of hardstem bulrush is rated poor for cattle, sheep, horses, elk, whitetail deer, mule deer, and pronghorn antelope.

Waterfowl will feed on the seed. The dense tules provide excellent nesting cover for numerous waterfowl and wetland birds (Boggs et al., 1990).

Muskrats and beaver will eat the rootstock and young shoots. Muskrats also use the stems for building their houses.

Water Treatment/Erosion Control:
Hardstem bulrush's dense root mass makes this species an excellent choice for soil stabilization. Its above ground biomass provides protection from erosive wave action and stream currents that erode shorelines or stream banks. The rhizomatous root system also forms a matrix for many beneficial bacteria, making this plant an excellent choice for wastewater treatment (Hurd et al., 1994).

Ethnobotany:
The young sprouts and shoots of hardstem bulrush can be eaten raw or cooked, and the rhizomes and unripe flower heads can be boiled as a vegetable. Hardstem bulrush rhizomes were also sundried and pounded into a kind of flour. Bulrush pollen is eaten as flour in bread, mush or pancakes. The seeds can be beaten off into baskets or pails, ground into meal and used as flour.

Tule houses were common throughout many parts of California; the overlapping tule mats made homes well-insulated and rain-proof. The walls and roofs were thatched with mats of tule or cattail and secured to the frame. In Nevada, tules and willows were bound together in a sort of crude weaving for "Kani", the Paiute name for summerhouse. . Hardstem bulrush was also used to make shoes, skirts, baby diapers, bedding, and duck decoys. Several California Indian tribes make canoes of hardstem bulrush stems bound together with vines from wild grape.

Hardstem bulrush has also been used by Native American tribes medicinally. The Cree used a poultice of stem pith to stop bleeding. Navajo and Ramah tribes used the plant as a ceremonial emetic, and the Thompson tribe placed ashes from burned stems on a newborn's bleeding naval (Moerman, 2009).

Status

Hardstem bulrush is considered threatened in Connecticut and endangered in Pennsylvania (USDA-NRCS, 2011). Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Description
General: Sedge Family (Cyperaceae). Hardstem bulrush is a perennial, rhizomatous, wetland obligate species that reaches up to 3 m (10 ft) in height and forms very dense stands. The stems are upright, gray-green to dark-green, round, 1 to 2 cm (0.4 to 0.8 in) thick and 1 to 3 m (3 to 10 ft) tall. The leaves are few and short, found at or near the base, and commonly have a well developed sheath. The inflorescence is a terminal panicle of 3 to 10 spikes which are made up of up to 50 or more spikelets. Each spike may be on a short pedicel or sessile. The inflorescence is exceeded by a 2.5 to 10 cm (1 to 4 in) lateral bract. The fruit is a dark brown lenticular achene up to 2.5 mm (0.1 in) long (Welsh et al., 2003).

Distribution:
Hardstem bulrush occurs throughout North America except for the southeastern states from Louisiana east to Florida and north to Tennessee (USDA-NRCS, 2011). For current distribution, consult the Plant Profile page for this species on the PLANTS Web site.

Habitat:
Hardstem bulrush is found at low to mid elevations, generally below 2,300 m (7,500 ft), in inundated to periodically wet areas of marshes, swamps, and meadows and along lake, reservoir, and pond shorelines.

Adaptation
Hardstem bulrush forms large, often monoculture, stands with the young plants on the outside and the older plants in the center of a stand. It is generally found in areas of standing water ranging from 10 cm to more than 1.5 m (4 in to 5 ft) in depth. It will not tolerate long periods of very deep water. Hardstem bulrush will grow on soils that range from peat to coarse substrates. It will grow and spread on alkaline, saline, and brackish sites and will re-sprout after fire. Burning increases its production and protein content. Hardstem bulrush reproduces from seed and rhizomes. Rhizomes will spread more than 45 cm (18 in) in one growing season.

Establishment
Wild transplants:
Wild plants can be collected and transplanted directly into the desired site. If less than 4 dm^2 is removed from any 1-m^2 area (1 ft^2 in 1 yd^2), the hole will fill in within one growing season. Care should be taken not to collect plants from weedy areas as weeds can be relocated to the transplant site.

Planting plugs (either from the greenhouse or wild transplants) is the surest way to establish a new stand of this species. Plug spacing of 30 to 45 cm (12 to 18 in) will fill in the interspaces within one growing season. Soil should be kept saturated. Standing water should be no deeper than 4 to 5 cm (1.5 to 2 in) during the first growing season. Larger transplanted plugs can handle more standing water if the stems are cut long enough to ensure they are out of the water. Raising and lowering the water level during the establishment period will speed up plant spread and can be used to control weeds (Hoag et al., 1992).

Management
Water level in a wetland should be fluctuated from saturated conditions up to a maximum depth of 30 cm (12 in) of standing water for establishing plants. The young plants can handle deeper water, but not for an extended period of time. This species can tolerate periods of drought and total inundation. It will spread into water depths of 1 to 1.5 m (3 to 5 ft). Water levels can be managed to either enhance or reduce spread as well as to control terrestrial weeds. Hardstem bulrush may be replaced by cattail (*Typha* spp.) if water levels are dropped for an extended period (Harris and Marshall, 1963). Hardstem bulrush re-establish from seed and rhizomes following fires (Smith and Kadlec, 1985).

Pests and Potential Problems
Pests are generally not a problem. Aphids will feed on the stems, but generally will not kill the plant.

Environmental Concerns
Because of its poor forage value, hardstem bulrush can be considered undesirable in flooded meadows and pastures. Hardstem bulrush is native to western North America. It can spread under favorable conditions but does not pose any environmental concern to native plant communities.

Seeds and Plant Production
Hardstem bulrush reproduces sexually by seed and asexually through vegetative spread via rhizomes.

Hardstem bulrush seed. Photo by Derek Tilley

Seed Collection and Cleaning:
Seeds ripen in late August to September. Seeds are not held tightly in the seed head, and high winds, frost, and brushing against the seed head will cause the seeds to dislodge. Seed may be collected by hand stripping from the plant or by clipping the seed head using a pair of hand shears.

A hammermill is needed to break up coarse debris and knock seed free from the panicle. Cleaning can be accomplished using a seed cleaner with a No. 12 top screen and a 1.27 mm (1/20 in) bottom screen. Screens should be sized so desired seed will fall through and debris and weed seed are removed. Air velocity should be adjusted so chaff is blown away. Air flow and screen size may require adjustment to optimize the cleaning process for each collection.

Greenhouse Plant Production:
Improved germination rates have been achieved with cold/wet stratification treatment with the seeds in a mixture of water and sphagnum moss at 2°C for 30-75 days. Others have found success using a 10% acid wash for 45 minutes followed by a thourough washing then wet pre-chilling the seed for 75 days.

Seed needs light, moisture, and heat for germination. Place seed on the soil surface and press in lightly to assure good soil contact. Do not bury the seed. Soil should be kept moist. Greenhouse temperatures should be maintained at approximately 35 to 38° C (95 to 100° F). Germination should begin within 7 to 10 days. Maintain moisture until plants are to be transplanted.

Cultivars, Improved, and Selected Materials (and area of origin)
There are no cultivars, improved, or selected materials of hardstem bulrush. Common wildland collected seed is available from commercial sources (Native Seed Network).

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Prepared By

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For more information about this and other plants, please contact your local NRCS field office or Conservation District at http://www.nrcs.usda.gov/ and visit the PLANTS Web site at http://plants.usda.gov/ or the Plant Materials Program Web site http://plant-materials.nrcs.usda.gov.

PLANTS is not responsible for the content or availability of other Web sites.

FW: Public Comment on December 2020 Agenda Item Thursday 13b - Application 5-20-0017 (City of Long Beach Marketplace Marsh)

SouthCoast@Coastal <SouthCoast@coastal.ca.gov>

Fri 12/4/2020 10:25 PM

To: Revell, Mandy@Coastal <Mandy.Revell@coastal.ca.gov>

From: Mark Hall <mhall@glacvcd.org>
Date: Friday, December 4, 2020 at 2:58 PM
To: "SouthCoast@Coastal" <SouthCoast@coastal.ca.gov>
Subject: Public Comment on December 2020 Agenda Item Thursday 13b - Applicaon 5-20-0017 (City of Long Beach Marketplace Marsh)

Dear Honorable Commission,

I am wri ng to reaffirm the Greater Los Angeles County Vector Control District's support of the permit applica on 5-20-0017 submi ed by the City of Long Beach to perform vegeta on management at the Marketplace Marsh. Commission staff has submi ed a comprehensive report, and the District appreciates the Commission's recogni on of the public health concerns associated with this site. I will be present and available at the mee ng to respond to any ques ons or concerns the Commission may have regarding the District and its ac vi es.

Thank you,
Mark Hall

Mark Hall
Urban Water Program Manager
Greater Los Angeles County Vector Control District
12545 Florence Avenue
Santa Fe Springs, CA 90670
562.758.6554 (Direct)
562.944.9656 (Main)

Special Condition 16 re the Los Cerritos Wetlands Restoration and Oil Consolidation Project

Yahoo <achris259@yahoo.com>

Fri 12/4/2020 11:32 AM

To: Revell, Mandy@Coastal <Mandy.Revell@coastal.ca.gov>; Rehm, Zach@Coastal <Zach.Rehm@coastal.ca.gov>; Dobson, Amber@Coastal <Amber.Dobson@coastal.ca.gov>; Ann Cantrell <anngadfly@aol.com>

Deal All, Forgot to include this in the documents sent to you this morning. We did send this info before our meeting, but since you did not think the project area (City site) was included in the Special Condition, we want to make sure you can review the info again.

Application No.: 9-18-0395 Applicant: Beach Oil Minerals (BOM) and the Los Cerritos Wetlands Authority (LCWA)
III. SPECIAL CONDITIONS This permit is granted subject to the following special conditions:

16. Water Quality Management Plan. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit to the Executive Director for review and written approval, a Water Quality Management Plan (WQMP) for postconstruction conditions at all four project sties. This Plan shall be prepared by a qualified licensed water quality professional.....**For the Synergy and City sites,** the WQMP shall include details on all aspects of water quality protection for the post-construction environment of this project, including detailed drainage and runoff control plan sheets, and all supporting BMP sizing calculations. The Plan shall include the following, where appropriate:

b. **Best Management Practices.** The WQMP shall incorporate long-term postconstruction Best Management Practices (BMPs) that protect water quality and minimize changes in runoff volume and rate post-construction. The WQMP shall include the following requirements: **i. The use of chemical pesticides, herbicides, and rodenticides containing any anticoagulant compounds (including, but not limited to, Warfarin, Brodifacoum, Bromadiolone or Diphacinone), shall be prohibited.** The use of fertilizers shall be minimized to the maximum extent practicable. **An Integrated Pest Management Program (IPM) shall be implemented in all landscaped areas. The IPM Program shall be designed and implemented for all of the proposed landscaping/planting on the project site and shall include the following IPM features, as appropriate: 1. Bacteria, viruses and insect parasites shall be considered and employed as a pest management measure, where feasible. 2. Manual weeding, hoeing and trapping 3. Use of non-toxic, biodegradable, alternative pest control products.** 4. The applicant or responsible party shall be responsible for educating all landscapers or gardeners on the project site about the IPM program and other BMPs applicable to water quality