

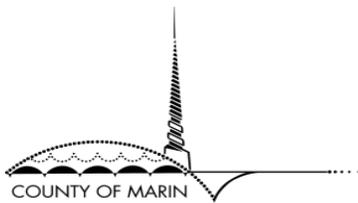
Attachment A
Proposed 10-Year Weed Management Workplan
(FY 2013-14 through FY 2022-23)
Date: TBD

DRAFT TIMELINE AND SUMMARY OF PROCESS

<u>Tasks to Accomplish</u>	<u>Estimated Timeframe</u>
Education and outreach to garner broad support	July 2013 and ongoing
Receive feedback/comments	Ongoing
Rancher meetings held	August 26 th and September 19 th 2013
Develop voluntary Landowner Advisory Group	August-September 2013
Weed plan available for review by stakeholders	October 2013
Identify funding sources	August 2013 and ongoing
Request approval by Board of Supervisors	December 2013
Identify Landowner Advisory Group responsibilities	September-February 2013
<u>If Funding is Approved by the Board of Supervisors:</u>	
Develop implementation plan	December-February 2013
Hire staff person to help implement program	December-February 2013
Develop rancher application/selection process	December-February 2013
Field surveys	Ongoing
Begin implementing weed management strategies	March 2014 and ongoing as permitted
Evaluate work performed	Ongoing

SUMMARY OF DRAFT COST SHARE PROGRAM AND LONG-TERM GOAL

- Landowner Advisory Group would provide recommendations to Agricultural Commissioner and UC Farm Advisor on how to implement plan, allocate funding, develop a landowner selection process, etc.
- Provide each landowner a fixed dollar amount per parcel (based on acreage) for invasive weed management. The landowner would decide how to use those funds based on their specific circumstances, including their organic or conventional status, and recommendations from the University of California and vegetation experts on the Landowner Advisory Group
- The history of land management on the property would be a determining factor in receiving partial or full funding
- Long-term goal would be to cost share sustainable weed control strategies (not herbicide use).
- Cost share funds would not be provided to landowner until verification of work is done
- There would be a robust accounting and tracking process to ensure the effective use of funds



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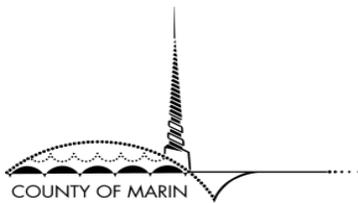
To provide effective, long-term noxious and invasive weed management, landowners must vigilantly and proactively manage and protect their land on an ongoing basis. The cost and time to manage noxious and invasive weeds is often prohibitive for many landowners, especially when established infestations get out of hand. Weed seeds remain viable in the soil for a few years up to several decades. A single plant of woolly distaff thistle can have 18,000 seeds! Attempting to control weeds for a year or two is impractical, costly, and shortsighted, though in some cases it can temporarily slow the spread of invasive weed species. Additionally, there is an increase in herbicide use, which is in conflict with the countywide goals of Sustainable Communities and Environmental Preservation. Early detection and rapid response are paramount to effectively managing invasive weeds long-term.

The Department of Agriculture/Weights and Measures (Department) and Farm Advisor/UC Cooperative Extension would work jointly on this project. The Department would hire a one year fixed-term employee to help lead the implementation of this plan and the Farm Advisor/UC Cooperative Extension would continue to connect and integrate the program with weed management expertise from the UC Berkeley and Davis campuses and elsewhere. Both departments would play an integral role in advocating for this weed management plan and helping to ensure its success. This plan would target woolly distaff thistle, purple starthistle, and many other invasive weeds. The implementation of the plan would likely start in areas with existing heavy invasive weed infestations, including outlier populations that have a high likelihood of eradication with limited resource requirements.

There is an expectation that all public and private landowners would play an active role in this plan. Ranchers and private landowners must work cooperatively together since invasive weeds know no property boundaries or watersheds. The success of this plan would be dependent on all of these landowners working together toward a common goal, and the Department and the Farm Advisor/UC Cooperative Extension helping to facilitate effective communication as needed. Landowners would be expected to continue to manage invasive weed populations on their land after significant infestations have been knocked down and are under control. The ultimate goal is long-term effective management of invasive weeds through sustainable methods (non-herbicide) that returns the land to productive agricultural use and diverse functioning native grasslands and prairies.

EDUCATION AND OUTREACH

A vital aspect of this plan to help ensure its success is a robust and well-organized education and outreach plan to industry, the general public, private landowners, and other agencies. Our Department and the Farm Advisor/UC Cooperative Extension would closely communicate with ranchers and landowners on the expectations of this plan. Their input would be sought and carefully reviewed to ensure the most effective use of resources occurs. All landowners should be able to accurately identify invasive weeds of concern (or have someone that can), and understand how these injurious weeds can be moved from one location to another, potentially resulting in the



establishment of a new population of invasive weeds. Landowners and others would be trained in invasive weed identification as needed.

The Department and the Farm Advisor/UC Cooperative Extension would develop a collaborative education and outreach plan, which would include a wide variety of local, state, and federal organizations and agencies. Participating organizations and agencies would be able to work closely with landowners to share their knowledge and skills of good land stewardship practices and integrated pest management (IPM) weed strategies.

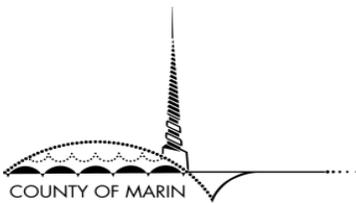
Landowners must be educated on the importance of implementing sound land management practices. Each situation will likely be different from site to site, which means a variety of weed control strategies may be used to properly address an infestation. In cases where a dense invasive weed population occupied an area and has been removed, appropriate long-term restoration activities (i.e., over seeding, etc.) are a key element of effective land management.

Education and outreach to the community about the invasive weed issue is imperative. Also, having the public involved and working with organizations such as the Friends of Corte Madera Creek Watershed on invasive Spartina is absolutely critical. This plan represents a broad approach to control invasive species in Marin County, whether it's Spartina or a newly introduced invasive species. We are continually on the lookout for new plant species that may impact our ecology.

Studies are currently being conducted on weed management strategies by UC Davis and UC Berkeley to develop effective methods of controlling woolly distaff thistle, purple starthistle, and barbed goat grass. Other injurious noxious weeds of concern include gorse, French broom, scotch broom, Spanish broom, and many others.

ENVIRONMENTAL, HUMAN HEALTH AND SAFETY CONSIDERATIONS

A primary objective of managing and eradicating noxious and invasive weeds is to help landowners implement long-term control strategies using IPM strategies recommended by UC Davis and UC Berkeley and vegetation experts on the Landowner Advisory Group, which are consistent with the County's IPM policies and ordinance. In many cases the use of non-organic herbicides in the short term would be required to reduce existing larger invasive weed infestations, but would only be used when recommended by weed experts on the Landowner Advisory Group. The long-term impact to the treated site would be very positive because once an invasive weed population is reduced to a manageable size, other sustainable IPM options can be used, most of which are approved for certified organic operations. Sustainable weed management control methods (non-herbicide) would be the recommended option whenever possible. Herbicides would generally only be recommended when other non-herbicide control options were determined impractical, and only to gain the upper hand on larger invasive weed infestations. Depending on which invasive weed is being controlled, it may take one application each year for more than two years to be able to shift to mechanical methods. Each site is unique and must be treated as such, and weed control methods must be



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evaluated annually. Certain invasive weed species such as European beachgrass, perennial pepperweed, and *Spartina alteriflora* hybrid may not be feasibly eradicated using only non-herbicide weed control methods. In these instances, selective and limited herbicide use may be needed. These types of invasive weeds often have extremely deep roots or rhizomes, and can regrow and/or spread from very small root fragments and aboveground plant parts. The long-term goal would be to only cost share sustainable weed control strategies (not herbicide use).

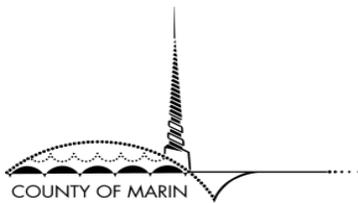
When herbicides must be used, it is in everyone's best interest to use the least toxic material that is safe, effective, and affordable. When possible, if spraying is to take place, invasive weeds should be manually removed beyond the primary infestation – essentially working from the outside toward the infestation. This would eliminate the outliers and reduce the area to be sprayed to just the primary infestation. Also, there may be areas where invasive weeds are not controlled by any method, but are kept in a contained area so their spread is prevented.

CERTIFIED ORGANIC SITES

The number of certified organic ranches and farms in Marin County is currently about 75 and will likely continue to expand over the next several years. Approximately 30% of all agricultural operations in Marin County are certified organic. The Department, through its Marin Organic Certified Agriculture, is one of three counties in the state that is USDA National Organic Program (NOP) Accredited Certified Agency, certifies approximately 55 crop and livestock operations as certified organic. Approximately $\frac{3}{4}$ of our dairies are certified organic, which translates into about 33,000 acres of certified organic land. The Department and Farm Advisor/UC Cooperative Extension are both ardent supporters and promoters of organic farming and gardening.

Certified organic sites are not immune from invasive weeds and face greater challenges controlling weeds than their conventional counterparts. There are several certified organic sites with moderate to large invasive weed infestations, and they continue to encroach onto priceless pastureland, rangeland, and open space. It is because of this combination of production systems and the effectiveness of IPM principles for weed control that this plan is predicated on, and working within, an IPM framework.

The Department and Farm Advisor/UC Cooperative Extension expect certified organic operations to select the best method of weed control based on their circumstances, and use specific recommendations from the University of California and vegetation experts on the Landowner Advisory Group. There is no expectation that certified organic growers would use prohibited products on their site, although there are always exceptions. If there is an area that is heavily infested with invasive weeds, and is currently unusable and of a size that does not lend itself to non-organic control methods, a certified organic rancher may be willing to treat with a prohibited substance knowing they will gain productive land back in the future. Unfortunately, there are no



herbicides currently approved for certified organic sites that are effective against woolly distaff thistle, purple starthistle, and other invasive weeds. Any unapproved herbicide used on a certified organic site would require the specific area treated to lose its certified organic status for three years. It would take at least two years of herbicide applications to effectively gain the upper hand on moderate to large invasive weed infestations. This means the treated area could not be certified organic again for at least five years. As noted above, the non-organic herbicides generally used for weed control are low toxicity; both to animals and the environment. The long-term impact would be very positive because once an invasive weed population is reduced to a manageable size, other sustainable IPM options supported by Marin County's policies and procedures could be used which are likely approved for certified organic operations. A cost share program to offset the cost of temporary fencing could be explored for certified organic operations willing to take a portion of a site out of organic production in order to use a prohibited herbicide.

The Farm Advisor is working with the UC Cooperative Extension Weed Advisor and UC Davis Weed Management Specialists to develop and extend the full complement of weed control measures including biological, cultural, mechanical, and chemical. This team, working in cooperation with the Marin ranching community, has a research proposal pending consideration to support the research needed to confirm the efficacy of specific cultural, mechanical, and organic chemical controls.

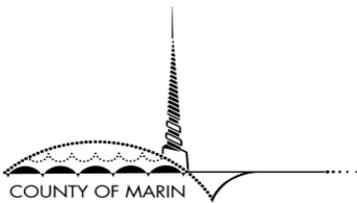
WEED MAPPING, INVENTORY, AND MONITORING OF TARGET SPECIES

The Department and the Farm Advisor/UC Cooperative Extension would work closely with the various agencies, organizations, and landowners to identify where woolly distaff thistle, purple starthistle, and other noxious and invasive weeds are located in Marin County. Existing invasive weed inventories can be used, and some organizations such as Marin Agricultural Land Trust (MALT) have been performing updated weed surveys and mapping in 2013.

There would be an expectation that ranchers and private landowners would actively participate and help track/report invasive weed populations on their lands. The Department and Farm Advisor/UC Cooperative Extension would ensure that resources would be available to landowners and agencies such as how to properly map, inventory, and monitor sites, and effectively train personnel.

COST SHARE PROGRAM

The cost to manage and potentially eradicate invasive weeds can be extremely expensive and take a substantial ongoing commitment from ranchers and private landowners for numerous years. The Department would plan to support landowners in their weed management efforts and help with funding through a cost share program. The recommendation is to provide each landowner a fixed dollar amount per parcel (based on acreage) for invasive weed management. The landowner would decide how to use those funds based on their specific circumstances, including their organic or conventional status. The Farm Advisor/UC Cooperative Extension would provide recommendations



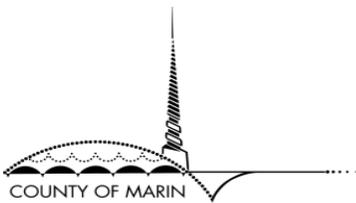
to landowners based on current best weed management practices. The history of land management performed on the site would be a determining factor in the level of funding a landowner would receive through a cost share program. Landowners that have not been adequately addressing their invasive weed issues would receive less funding through this cost share program, and must be held accountable to ensure invasive weeds are effectively managed on their site(s).

All landowners would be expected to continue to properly manage their land into the future. The length of time to maintain improvements made as a result of this cost share program should be a minimum of ten years. At the end of ten years we would have a complete assessment of how successful the plan was. We would provide annual updates (or as needed) to the Board of Supervisors, including revising the plan as needed. We would intend to request the Board of Supervisors to renew the plan for an additional ten years.

The Landowner Advisory Group would be tasked with helping to provide a framework to determine the actual cost share amounts. Many landowners are actively and successfully managing weeds on their land while others are doing nothing and have significantly contributed to the invasive weed problem. There must be recognition given to those landowners already spending thousands of dollars of their own funds annually to protect their lands from invasive weeds.

The estimated cost to control thistles with herbicides using ground equipment (i.e., woolly distaff thistle, purple starthistle, yellow starthistle, etc.) is \$250 per acre, which includes labor (\$200 per acre) and materials (\$50 per acre). The estimated cost to control other invasive and noxious weeds with ground equipment (i.e., gorse, Scotch broom, French broom, Spanish broom, etc.) is \$300 per acre, which includes labor (\$250 per acre) and materials (\$50 per acre). On average it takes approximately one hour to treat one acre with a herbicide using ground equipment. The estimated cost per day to control thistles aerially with herbicides (i.e., woolly distaff thistle, purple starthistle, yellow starthistle, etc.) is \$2,500. The \$2,500 is charged based on the type of treatments performed such as on hillsides, open fields, and/or if spot spraying is performed. It costs approximately \$18-25 per acre to do the various types of aerial treatments, which includes all labor and materials. Aerial applications are generally used on steep hillsides, inaccessible areas, and on large infestations where it is impractical to treat using ground equipment.

Aerial applications under this plan would only be made based on recommendations by vegetation experts on the Landowner Advisory Group. In considering an aerial application the vegetation experts would carefully weigh health, safety, and environmental concerns; the liability and concern for injury to employees or ranchers working on remote and/or excessive slopes and erodible/unstable soils; environmental impacts due to equipment causing soil compaction, erosion, and crop damage during certain times of year (generally spring) when the ground may be saturated (and the invasive weeds are germinating and need to be controlled); if the invasive weeds in



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question need to be managed versus eradicated (due to their location) to prevent the further spread of the weed(s).

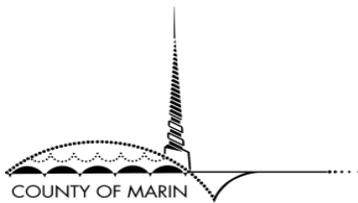
The judicious use of aerial treatments with County approved IPM herbicides can be arguably safer for people, wildlife, and the environment under for very specific circumstances. As noted above, the decision to apply aurally is not taken lightly, but is scrutinized to be certain it is the safest, most effective, and affordable weed control method for a particular site. The weather conditions must be suitable; there must be appropriate buffer zones; and strict adherence to proper application techniques and pesticide laws and regulations. Additionally, this method of application uses extremely small amounts of herbicide and targets specific areas mapped using GIS technology. The Department would use onsite inspectors to carefully monitor aerial applications to ensure they are safe and effective. These efforts when placed into effect will mitigate off-site drift potential.

The Department recommends landowners use contractors specializing in weed control in rangeland, pastureland, and open space settings (i.e., mowing, weed whipping, over seeding with native grasses, herbicide treatments, etc.). When herbicide applications are necessary (because other sustainable options have been ruled out) the landowner would be responsible for contracting with a properly licensed and registered pest control business. Pest Control Businesses using ground equipment (i.e., mowers, spray equipment, etc.) would be responsible for a wide variety of tasks, such as tracking and recording weed species on each site and acres controlled for each species; using best management practices (BMP's) for cleaning equipment, boots, and clothing to ensure invasive weed seeds are not moved off site; conducting follow-up site visits to determine weed control efficacy; and providing the Department a summary of the work performed on the site.

All Pest Control Businesses applying herbicides (ground or aerial) would be responsible for providing a GIS map (or equivalent) of the proposed treatment area at least one week prior to the application date, and providing GPS map(s) showing total acres treated within one week after the treatment date for each application made on each site.

The Department would be responsible for conducting follow-up site visits to determine the effectiveness of weed control methods; taking before and after photos as needed; and confirming weed species are being properly tracked and recorded (i.e., documenting acres treated for each species). The Department and Farm Advisor/UC Cooperative Extension would work with the landowner to ensure weed species found on each site are properly tracked, documented, and monitored on an annual basis as needed by the landowner.

Pesticide applications in Marin County are strictly enforced. Pesticide applicators (ground and aerial) are required to follow all necessary pesticide use enforcement requirements. The Department would verify herbicide treatments were properly performed and reported through onsite inspections and verification of records, confirm contractor and landowner requirements were properly completed, and provide approved cost share funds to landowners. The landowner would



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be reimbursed by the Department only after a thorough site and document review has taken place and proper weed control methods have been verified (i.e., site visit, map/invoice review, discussions with the landowner and contractor, etc.). The landowner must be held accountable to ensure the cost share funds are properly used, and effective land management practices are implemented. The department and Farm Advisor/UC Cooperative Extension would provide ongoing assistance as is practical.

Landowner's would be asked to track weed management costs (labor and materials) for work they do on their land, excluding work performed by contractors. Also, specific measureable outcomes and requirements would include a record of how many acres were controlled, by what method, timing, the type of invasive plant(s) targeted, the efficacy of the control strategy, etc. Follow-up field inspections would be required to verify the effectiveness of invasive weed management methods and to help determine (through sound land management principles) what the appropriate future control methods would be.

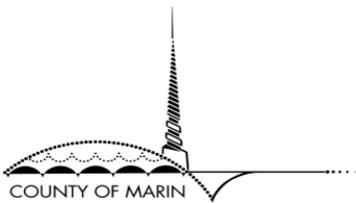
The Department would track all costs associated with work performed by contractors. This information would provide critical weed management data to gain a better understanding of how cost share funds were spent, where they were spent, what kinds of weed control methods were used, which invasive weed species were targeted, and the success rate of various weed control strategies.

Additionally, various organizations such as Marin Agricultural Land Trust (MALT) and Marin Resource Conservation District (RCD) are currently providing land management expertise to the landowners whose properties they help to manage. Overgrazing is a serious issue, and ensuring landowners adopt comprehensive land management practices is vital. Our outreach and education program would include information on this and similar issues to help reduce the spread of invasive weeds. Our department and the Farm Advisor/UC Cooperative Extension (along with the support from other organizations) would help to verify proper land management practices are being implemented through follow up site visits and field surveys. We understand that one of the primary root causes of invasive weed infestations continuing to proliferate is due to poor land management.

A coordinated approach with all landowners (adjacent properties) involved must be undertaken to ensure an infestation that crosses multiple property lines is effectively handled.

ADDITIONAL RESOURCES

The Department and Farm Advisor/UC Cooperative Extension recommends working closely with partner organizations and would actively seek additional financial/resource support from some of these partners to help make this plan a success. Potential funding/support could come from Natural Resource Conservation District Environmental Quality Incentive Programs (EQIP), Marin Agricultural Land Trust (MALT), Marin Resource Conservation District (RCD), Marin County Farm Bureau, Point Reyes National Seashore (PRNS), and County of Marin. Any funds received could be



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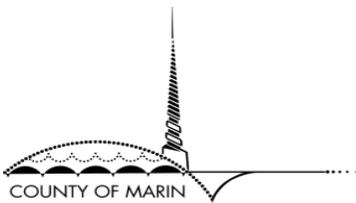
leveraged against possible state and/or federal funding, such as for the Marin/Sonoma Weed Management Area (WMA).

Other options to help manage weeds may include using the California Conservation Corps, Eagle Scouts, Boy Scouts, or other volunteers, which can be very effective in removing invasive weeds on specific sites.

ABATEMENT OF NOXIOUS WEEDS

The Department has the authority to enforce abatement summary proceedings against private landowners that refuse to manage and eradicate existing invasive and noxious weeds on their land. Abatement authority is found in Sections 6.60.010 and 6.60.020 of the Marin County Municipal Code and Sections 5401-5405 of the California Food and Agriculture Code. Holding all ranchers and other landowners equally accountable for properly managing their land for invasive weeds on an ongoing basis is imperative to this success of this plan. The Department's abatement authority would be tactfully mentioned as needed as part of the education and outreach plan. Landowners would need to take an active role in managing and eradicating invasive weeds on their land and working collaboratively with any organizations and neighbors involved.

A primary reason Marin County and most other counties have problems with invasive and noxious weeds is because various landowners in the county have purchased and continue to purchase unknowingly contaminated noncertified feed (i.e., hay, grain, etc.) products. These products often contain viable seeds of one or more noxious and invasive weeds, which hold the potential to start a new infestation. The Department is considering a proposal to revise Title 6, Chapter 6.60 of the Marin County Code to require all feed products to be certified weed-free; if certified weed-free products are not available other options could be approved. Before this proposal could be seriously considered, the Department and Farm Advisor/UC Cooperative Extension would need to perform a thorough assessment. As we currently understand it, certified weed-free products are only available on an extremely limited basis so this proposal may not be a viable option. Weed-free feed is not organic and the way it becomes weed-free is through herbicide treatments. Weed-free products could be a creative and sustainable long-term way to help ensure these products are not inadvertently carrying invasive and noxious weed seeds into Marin County, but the process must be meticulously reviewed to be sure it falls within the County's existing IPM policies. We will continue to recommend ranchers survey their properties for new weed infestations and to control them immediately.



SUMMARY OF POTENTIAL FUNDING AND COSTS

10-Year Plan	Funding and program costs to manage woolly distaff thistle, purple starthistle, and other invasive weeds	Potential Available Funding
<u>Year 1</u> FY 2013-14	<ul style="list-style-type: none"> • Survey a minimum of 500 acres for woolly distaff thistle, purple starthistle, and other invasive weeds • Perform a minimum of 60 outreach and education events to landowners, other members of the public, and various organizations about the plan, which may include the latest science based methods available to control noxious and invasive weeds, and the use of IPM principles which are consistent with the County's IPM ordinance • Control a minimum of 300 acres of woolly distaff thistle, purple starthistle, and other invasive weeds per recommendations by UC Davis and UC Berkeley • Hold one public workshop to receive feedback about the plan • Hold a minimum of two Landowner Advisory Group meetings • Annually follow-up with stakeholders to provide updates on the status of the plan 	*\$118,000
<u>Years 2-10</u> FY 2014-15 through FY 2022-23	<ul style="list-style-type: none"> • Annually evaluate effectiveness of control measures • Continue surveying for woolly distaff thistle, purple starthistle, and other invasive weeds • Recommend using UC IPM strategies whenever possible which are consistent with Marin County's IPM ordinance • Manage and control a minimum of 500 acres of woolly distaff thistle, purple star thistle, and other invasive weeds • Annually reevaluate Weed Management Strategic Plan to ensure deliverables are being met and/or exceeded 	**Unknown at this time
<u>Year 10</u> FY 2022-23	<ul style="list-style-type: none"> • Determine whether or not to recommend extending Invasive Weed Management Plan an additional 10 years 	TBD

* In FY 2013-14 an estimated \$45,000 would be used toward a landowner cost share program, and approximately \$73,000 would be used to support a staff position with the Department

** For FY's 2014-15 through FY 2022-23 available funding will be determined on an annual basis. These funds would be used toward a landowner cost share program; and to cover the cost of a staff position within the Department