LIVING LABORATQRIES

Improving Management at Two University of California Natural Reserves

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BACKGROUND

The University of California Natural Reserve System (UCNRS) is a network of preserved natural areas in California that serve as a "library of ecosystems" for science and educational purposes. The 39 reserves in the UCNRS have the mission to foster **research** and **university-level education**, practice **wise stewardship**, and support **public service**.



Within the UCNRS, UC Santa Barbara (UCSB) manages seven reserves including **Sedgwick Reserve** and **Valentine Camp**, two sites with valuable habitats, species, and other natural resources to be used for research, education, and public service. However, UCSB faces challenges in managing these sites and adhering to the UCNRS mission. Specifically, Sedgwick and Valentine face ecological problems of high fire risk and invasive species, have low research and educational use, and seek better community relations.

OBJECTIVES

Contribute to four pillars of the UCNRS mission by investigating and recommending adaptive management actions that:

Foster resilient native habitats on-site, lessen risk of fire, and reduce invasive plant species.

Increase the number of university-level classes taught at the reserves.

Increase the number of research projects conducted at the reserves.

Shift to science and environment-based public use by expanding partnerships with these community groups.







Research



Public Service

3 SIGNIFICANCE



Every management action either directly or indirectly affects each of the four pillars of the UCNRS mission — wise stewardship, research, education, and public service. Because of this, we evaluated how management strategies could specifically affect the individual objectives that they target, and how they could affect other management objectives.

By increasing research and education, shifting public use, and improving wise stewardship, Sedgwick and Valentine reserves better fulfill the UCNRS mission. Doing so can allow them to reach their potential as natural reserves and contribute more fully to a healthy planet

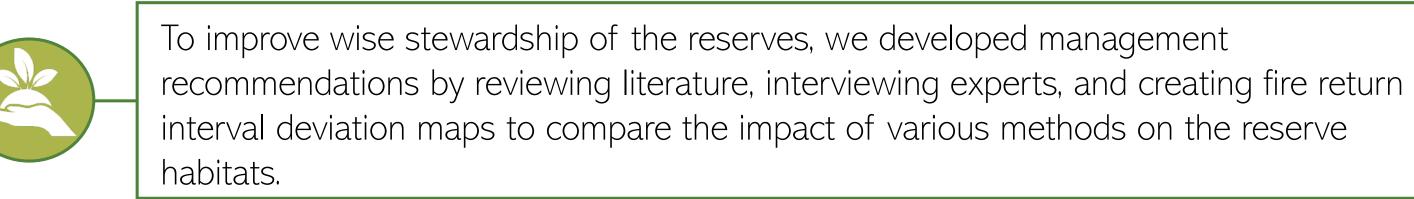
Acknowledgements

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4 OUR APPROACH

Data Collection and Evaluation





To foster positive community relations, we developed general recommendations for the reserves based on reserve use data and surveys distributed to community organizations.

Scorecard Development

Using the data we collected, we assessed each management action for its ability to support the UCNRS mission by achieving wise stewardship, research, and education objectives. Management actions were "scored" on management scorecards. On the scorecards, "sub-scores" show the level of impact each action has to the individual objectives. Sub-scores were weighted and combined into a final score, which determined the recommendation level for each management action.

Score	Color	Level of Impact	Score	Color	Recommendation
4		High	6.1 - 8		Strongly Recommend
3	•	Medium	4.1 - 6		Moderately Recommend
2		Low	2.1 - 4		Weakly Recommend
1		Neutral			VVCakiy i keceminena
(-)	•	Negative	1 - 2		Neutral
	•	•	< 0		Do Not Recommend

Class

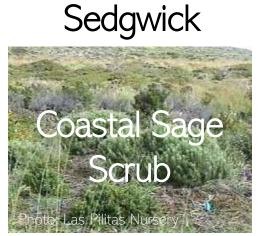
■ Research

Public

Sedgwick Reserve

RESULTS

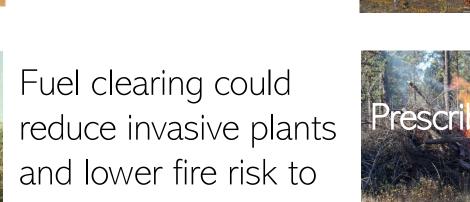
Wise Stewardship

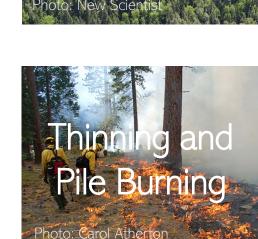


High risk of conversion to grasslands with prescribed burns.



Fire and grazing are potential treatment methods to reduce invasive plants.





Valentine

optimal methods to reduce forest density.

Potential for prescribed fire to

Tree density is

currently double

natural conditions.

Mechanical thinning

and pile burning are



The majority of survey respondents indicated that distributing more information about the reserves would increase use. Current users predominantly learned about the reserves from colleagues, web searches, and research publications.

Research and Education

Average Annual Reserve Use

Class

Public

Valentine Camp

■ Research

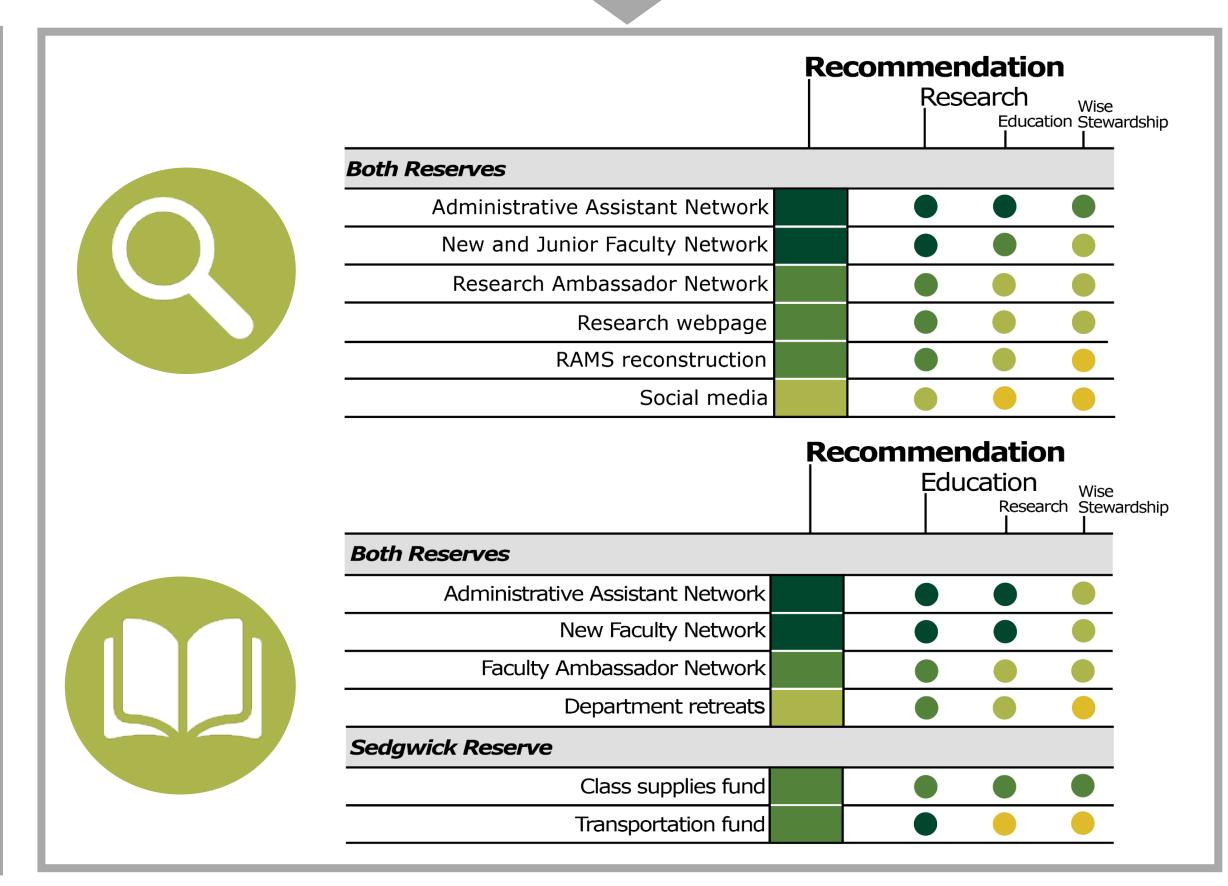
Public Service

Public use is the highest category of use.

Overall, survey respondents were satisfied with the reserves' current public service, though some indicated a need for increased public outreach to spread awareness. Email, local news, friends and colleagues, and web searches were listed as the best forms of communication.



Recommendation Wise Stewardship Sedgwick Reserve Long-term treatment monitoring Long-term management experiments Mechanical & chemical weed treatment Fuel clearing in oak woodlands Prescribed burns in non-native grassland Grazing in non-native grassland Pond and marsh management Prescribed burns in coastal sage scrub Valentine Camp Long-term treatment monitoring Mechanical thinning and pile burning Underburning Mastication Chemical thinning





When identifying public stakeholders for potential partnership, reserves should focus on the organizations that best support the components of public service in citizen science, community leadership, K-12 environmental education, ecosystem collaborations, and public access and events.

Further Information -

If you have any further questions about our project, feel free to contact us or visit our website: Email: gp-uclivinglabs@bren.ucsb.edu
Website: https://uclivinglabs.weebly.com

To learn more about the reserves, please visit their websites: Sedgwick Reserve: http://sedgwick.nrs.ucsb.edu Valentine Camp: http://vesr.nrs.ucsb.edu

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