

CARNEROS CREEK WATERSHED MANAGEMENT PLAN

Napa County Resource Conservation District · 1303 Jefferson Street, Suite 500B · Napa, CA 94559 · (707) 252-4188 · www.naparcd.org

FUTURE RESEARCH AND RECOMMENDED MONITORING

Although a great effort was made to assess existing watershed conditions in 2002 as part of the extensive watershed assessment, some additional research needs were discovered. They include the following:

- Identify wildlife species and habitat diversity
- Identify key wildlife corridors
- Gather data to improve water budget
 - Multi-year records of monthly rainfall
 - Establish creek flow measurement stations at several locations and maintain for 5 years
 - Gather information on permitted surface water withdrawal volumes (identify those with & without bypass requirements)
 - Improve information on ground water extraction – meter as many wells in the watershed as possible
 - Identify where aquifer is recharged
 - Estimate water use for vineyard, residential, and other irrigation, and rural domestic use
- Conduct groundwater monitoring to better characterize the groundwater aquifer and locations of recharge

Beyond additional research, watershed conditions should be monitored over time to allow the community to track changes within the watershed and adapt their land management strategies accordingly. Several recommendations for on-going and future watershed monitoring resulted from the watershed assessment and are summarized in the following pages in matrix format for each of the identified objectives. For each recommendation, we have tried to identify relative priority, cost and effort; frequency of monitoring; and success criteria.

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Recommended Monitoring

Objective A: Establish and maintain an uninterrupted riparian corridor along Carneros Creek and its major tributaries, emphasizing the use of native plants which are not primary hosts for Pierce’s disease.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
A-1	Monitor vegetation growth and continuity and width of riparian corridor	Annually for 3 years then once every 5 years	corridor is 95% continuous, with no single gap larger than 66 ft in length	M	\$	L
A-2	Monitor vegetation growth at restoration sites	Pre-project baseline, post project for 5 years - then once every 3 years		H	\$ - \$\$	L - M
A-3	Observations of vines infected with Pierce's Disease should be recorded. Trend patterns should be mapped, characterized and compared to riparian PD management projects.	Annually		For Discussion		

Objective B: Promote contiguous upland habitat and biodiversity.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
B-1	Measure and record the shape, area and connectivity of wildlife habitat and migration corridors including riparian corridors and east-west corridors.	Annually for 3 years then once every 5 years		M	\$	L
B-2	Document number of wildlife species present in the watershed	Once every 5 years		H	\$	M
B-3	Monitor grazed areas, specifically grazing-related erosion; grass species composition, condition, and density; percent of area composed of exotic invasive species; and effectiveness of best management practices	Annually for 5 years then once every 3 years		H	\$	L

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Recommended Monitoring

Objective C: Maintain and improve in-stream habitat.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
C-1	Conduct a survey of complete and partial migration barriers for salmonids and other fish species	Every 3 years	Removal of all complete and partial barriers	M	\$\$	H
C-2	Monitor the number, depth, volume, complexity, and location of pools	Every 3 years and the dry-season following large storm events	Pool habitat quality and quantity is stable for 2 consecutive monitoring periods.	H	\$\$	H
C-3	Monitor restoration projects - inventory of pools and channel form	Pre-project and then post project annually for 5 years	Achievement of project design goals.	H	\$	H
C-4	Document the location and condition of cattle crossings	Every 3 years	Removal and/or improvements to the crossings having an impact upon the stream	H	\$ - \$\$	L
C-5	Conduct snorkel surveys of fish species during the summer.	Annually for 3 years, then once every 3 years.	Fish distributions and densities are documented	H	\$\$	H
C-6	Conduct steelhead spawning surveys during adult migration season (December – March)	Annually for 5 years, then once every 3 years.	Population estimates can be generated.	H	\$\$	M
C-7	Monitor all projects that potentially impact in-stream habitat	Pre-project baseline and post project for 5 years	Project limits erosion in the project reach, does not induce erosion adjacent to the project, encourages natural channel processes, and encourages native vegetation	H	\$	M
C-8	Monitor water quality, particularly temperature, dissolved oxygen, pH, and conductance	Year-round	Maintain year-round temperatures below 68° F	M	\$	L
C-9	Measure turbidity	Year-round	Maintain turbidity levels at less than 2 NTU when flow is present.	M	\$\$	L
C-10	Sample benthic macroinvertebrates	Every 3 years	Diversity and abundance of species is maintained or improved.	H	\$\$	H

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Objective D: Reduce soil erosion.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
D-1	Monitor vineyard plots and avenues for rill and gully development throughout the wet season.	Annually throughout the wet season	Cost-effective practices are identified and problems are corrected as found	H	\$	L
D-2	Monitor and remove debris from bridges and culverts to prevent the buildup of debris	Annually pre-rain and throughout the wet season	Problems are corrected as found	H	\$	M
D-3	Conduct physical and biological monitoring at outlets that drain to the creek and reservoir outlets	Annually	Culverts/ditches/roads that are contributing or have the potential to contribute significant amounts of sediment to the fluvial system are repaired or removed.	M	\$	M

Objective E: Protect property and habitat using natural processes that promote streambank stability.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
E-1	Monitor bank erosion and measure channel cross sections	Every other year	The volume of bank erosion caused by human sources is reduced by 50% over the next five years.	H	\$\$	H
E-2	Map locations of debris jams	Annually	Areas prone to debris jams are identified and problems are corrected.	H	\$\$	H
E-3	Monitor effectiveness of bank stabilization projects.	Pre-project and then post-project for 5 years on an annual basis.	Project design goals are achieved.	H	\$\$	M

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Recommended Monitoring

Objective F: Improve water management for the benefit of watershed human, plant and animal communities.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
F-1	Document locations of all diversions from stream and make sure they are properly screened	Completed within 2 years	Landowners engage in self/peer analysis and diversions are located and properly screened.	H	\$ - \$\$	M
F-2	Work with RCD to continue monitoring water level and discharge, making the information available to those who divert water.	Year-round	Minimum stream flow requirements for salmonids are met throughout the year and sufficient water is available for human, plant, and animal uses.	H	\$\$	M

Objective G: Encourage land stewardship and sustainable land use.

RECOMMENDED MONITORING <i>Additional information regarding these monitoring recommendations can be found in the Reference Document.</i>		Frequency	Success	Priority	Relative Cost	Relative Effort
G-1	Document watershed community events that support watershed awareness and implementation of actions suggested in this plan.	Annually	8 events are held and attendance goals for each event are met	H	\$	L
G-2	Track progress of development of creek-care guide	within 5 years	Available on-line & distributed to 100 property owners or managers	H	\$	L
G-3	Track progress of establishing a restoration demonstration site and once completed, track its use.	within 5 years	Site completed and utilized annually for community events and monitoring.	H	\$-\$	M
G-4	Document, to the extent feasible, implementation of the recommendations in this management plan.	Annually	Variable	H	\$	L
G-5	Document efforts to obtain funding and funding received to implement actions suggested in this management plan.	Annually	Sufficient funding is available to landowners who choose to implement suggested actions.	H	\$	L

