

Lesson Plan 13.

Mapping Ranch Resources

Goals/Overview:

Know how to create a ranch map with online resources and know which agencies (NRCS, RCD) can create and print ranch maps. Understand how ranch maps are used for water quality management and completing an RWQP.

Learning Objectives:

1. Understand and have extra copies of the three types of maps that are common for the RWQP: 1) aerial photography, 2) gradient with USGS topographic contours, and 3) soil type/units (additional map types). Add other map types that are helpful in describing resources pertinent to ranch water quality planning or other aspects of ranch management.
2. Gain ability to add more ranch infrastructure and resources to the ranch maps, using appropriate agency staff or specific software for individuals to do it themselves.

Introduction/Hook:

- Maps are fun for most landowners. Look at them closely for accuracy and precision and see if landowners can find anything unusual that was unexpected on their property.

Materials/Speakers:

- Share ranch maps produced for other regions and how they were used by landowners.
- Historical aerial photos of ranches comparing circa 1970s to present. Google Earth often has comparable imagery from 1990s. Evaluate them for changes in brush encroachment and/or bare soil.
- Invited speaker and facilitator of discussion would be someone with knowledge in natural resource management and mapping from UCCE, NRCS, RCD, or other relevant organization.
- Instructional video: “[Mapping Ranch Facilities—Worksheet 8](#)” (15 minutes).

- Bring copies of the [RWQP Template](#), with extra copies of [Mapping Ranch Facilities—Worksheet 8](#).
- Provide attendees handouts of pertinent resources.

Time Allocated:

Allow 30 to 40 minutes (20 minutes for presentation and 20 minutes for questions/discussion).

Procedures/Activities/Strategies/Questions:

- Open with a brief story or anecdote, welcome newcomers, and ask for outstanding questions or concerns.
- Explain how ranch maps can be used to capture changes over time to ranch features and serve as an archive of ranch resources and projects.
- Review historical maps and aerial photos of ranches, focusing on landscape features that have changed over time.
- Present video: “[Mapping Ranch Facilities—Worksheet 8](#).”
- If necessary, review software resources presented in the video and the process to create ranch maps.
- Have participants review maps already in hand and identify locations where water quality projects have already been completed and/or where future water quality projects will be done.
- Complete the Session Evaluation Form (appendix A).

Conclusion/Self-assessment:

- Have participants reflect on how ranch features (that is, fencelines, water troughs, and holding fields) can change to support water quality and resource utilization and protection goals.
- Participants should consider adding previously completed conservation practices to maps in addition to springs, fence lines, pipelines, and so on.

Resources:

- Fallon, J., and J. Harper. 2002. Farm Maps: Farm Water Quality Planning Series. Oakland: UC Agriculture and Natural Resources Publication 8061. <https://anrcatalog.ucanr.edu/Details.aspx?itemNo=8061>
- Google. 2020. Google Earth. <https://www.google.com/earth/versions/>
- Natural Resources Conservation Service. 2020. Web Soil Survey. <https://websoilsurvey.nrcs.usda.gov/app/>
- UC Agriculture and Natural Resources. 2020. SoilWeb: An Online Soil Survey Browser. <https://casoilresource.lawr.ucdavis.edu/gmap/>

Next Steps/Future Lessons:

- Have participants consider additional infrastructure or natural resources to include in maps that will help them complete their mapping needs.
- Have participants consider potential problem areas for brush encroachment, available water troughs, and water quality, noting their locations on maps and distance to waterways.