

## Appendix A. Compass Product Development Methods

It was essential that the products of the Pajaro Compass reflected the collaborative vision of the 2015-2016 Pajaro Compass participants who represented conservation, agriculture, transportation, and government stakeholder interests from across the Pajaro River watershed region. Therefore, we sought to make the Pajaro Compass development process transparent and to ensure that the data and final products met stakeholder needs and represented a collaborative vision.

### METHODOLOGY

#### Input Data

The Pajaro Compass included six conservation themes vetted by the participants: water resources, biodiversity, agriculture, carbon and soil health<sup>1</sup>, recreation, and community. The participants developed a list of elements that were perceived to represent critical processes or features within each resource theme. The participants then ranked these individual elements based on their perceived importance for representing the resources in the Pajaro River watershed (rankings of the input data layers and their corresponding themes are in Table A1). We then acquired data layers to represent these elements. Data sources and analysis details are in Appendix B and C, respectively. Documenting the relative importance of each data layer helped prioritize data collection needs and were foundational in the development of products. Note: later in the process, the participants identified a need to incorporate data that represented community values, including cultural resources. These layers are included in the final conservation assessment but are not reflected in stakeholder rankings because they were added after

<sup>1</sup> Although the identified conservation goals determined by the stakeholders included a goal around carbon and soil health, the spatial analysis only addresses carbon stock. Because carbon stock provides a direct link to Climate Change and Carbon Stock—a primary focus identified in the Pajaro Compass Network survey—it was the sole focus of this theme in the maps and tools. The spatial analysis does not include data or metrics related to soil health. The carbon and soil health theme section discusses both.

the input data survey, in response to feedback from the participants (see Table C1 for community values layers).

**Table A1.** Input data scores reflect the weighted tally by 25 participants. Each layer was ranked as either Critical to Include (weight =2), Important to Include (weight =1), Indifferent (weight =0), or Do not include (weight=0).

Themes	Values	Score
Water Resources	Riparian corridors	45
Water Resources	Wetlands	42
Water Resources	Groundwater recharge	41
Biodiversity	Habitat Type - Biotic	40
Biodiversity	Connectivity	40
Water Resources	Floodplains	40
Biodiversity	Threatened and Endangered Species	39
Agriculture	Prime, important, unique farmland	37
Agriculture	Rangeland	37
Biodiversity	Rare species occurrences	36
Biodiversity	Aquatic Biodiversity	33
Water Resources	Water Quality	33
Biodiversity	Species Richness	31
Biodiversity	Habitat Type - Abiotic	29
Water Resources	Ecosystem service value	29
Biodiversity	Migratory Birds	28
Water Resources	Runoff	28
Carbon	Storage	28
Recreation	Regional and local trails	27
Recreation	Open space	27
Water Resources	Flows	25
Water Resources	Water supply infrastructure	25
Carbon	Ecosystem service value	24
Agriculture	Ecosystem service value	23
Biodiversity	Historical ecology	16
Recreation	Opportunity for local parks	13
Recreation	Recreation use of water	12

## Products

We convened a sub-group of participants (the Science and Tools working group) to ensure that the final map products would communicate the participants' vision and would be useful to decision-makers. This working group developed a 'menu' of map and tool options that ranged from simple to complex and had the capacity to reveal different types of information. Sixteen participants in two subsequent working sessions discussed which of the products from the menu would be most useful for their work and the work of their partners, or if they had concerns about any of the products (Table A2). Overall, the participants expressed that some tools would be useful to their work, but there was no clear indication of which particular tools or functions would be most useful.

**Table A2.** 'Menu' of data products and the number of participants to whom the product would be useful and to what degree it would be useful.

Description	Critical	Supports my work	Helps my partners	Not useful	I'm concerned about this product
<b>Tool 1:</b> Map of high priority areas	1	12			2
<b>Tool 2:</b> Map of high priority areas split out by strategy: protection, restoration, enhancement	2	10	1		3
<b>Tool 3:</b> Continuous Surface of Aggregated Values	3	11	1		
<b>Tool 4a:</b> Layered values <b>Tool 4b:</b> Layered values with custom reporting	1	13	1		
<b>Tool 5:</b> User-defined query of high priority	1	10	4		
<b>Tool 6:</b> Strategy based query	2	9	4		

These same participants also answered the following questions aimed to identify the most useful information that a Pajaro Compass tool could reveal, and concerns about products:

1. The Compass would be most useful if it answered the following questions:
2. The Compass would be most useful if it revealed the following information:
3. I am concerned that the Compass will:

The word cloud (Figure A1) displays the most requested type of information with the size of words reflecting the number of times they were a part of the response. The five most requested types of information from the Pajaro Compass were: priorities, stakeholders, conservation, values, and overlap. Using these top five responses, the Science and Tools working group assessed which tools in the 'menu' would be most suitable for meeting these needs and what data was needed in

addition to Table A1. The Science and Tools working group then provided recommendations to the steering committee (Table A3) based on which products would most likely avoid stakeholder concerns while also delivering the most requested information. The steering committee followed these recommendations and chose to proceed with development of a web-based data viewer that allowed participants to view and query many of the thematic data elements and an integrated value assessment that highlighted areas of extensive overlap between conservation themes. The data gap we identified was information about where, how, and on what issues the participants work in the Pajaro River watershed. Therefore, we created a survey with both thematic and spatial components (described in the Pajaro Compass Network Roles section of the main document) to collect this information from the participants.

We created the [Pajaro Compass Webmap](#) that included all data layers that were used to represent each of the conservation themes and influences in the watershed. The user can interact with these data layers by clicking them on and off,

**Figure A1.** A word cloud showing the most requested type of information from a Pajaro Compass product. The size of the word indicates the number of times it was included in a response. Larger words indicate a greater number of times it was expressed by participants.



**Table A3.** Recommended actions for each tool based on participants concerns, current resources, and which products could best reveal the requested information from a stakeholder survey.

Description	Recommendations
Tool 1: Map of high priority areas	<b>AVOID</b>
Tool 2: Map of high priority areas split out by strategy: protection, restoration, enhancement	<b>CAUTION</b>
Tool 3: Continuous Surface of Aggregated Values	<b>PROCEED</b>
Tool 4a: Layered values	<b>PROCEED</b>
Tool 4b: Layered values with custom reporting	<b>WISH LIST</b>
Tool 5: User-defined query of high priority	<b>WISH LIST</b>
Tool 6: Strategy based query	<b>WISH LIST</b>

and by viewing simple charts of acreages for some of the layers within a user-defined area. Data layer descriptions and data sources are available in Appendix B and on the [Pajaro Compass Webmap](#).

We also created integrated conservation assessments to indicate the degree of overlap between the six resource themes throughout the watershed (described in the Integrated Assessments section of the main document).

Integrated conservation assessments are composed of weighted combinations of the six thematic aggregate assessments. Each thematic assessment is composed of a weighted combination of that theme’s individual input data layers (detailed methods in Appendix C). Weights of each layer within each theme were based on three factors: 1) stakeholder ranking and conservation importance,

2) data accuracy, and 3) data distributions (weights included in Appendix C). Therefore, the darker areas on the thematic assessment maps can be interpreted as areas of the greatest perceived value in the watershed for a given theme. However, some areas indicated to be of low value may be due to lack of data or data inaccuracy.

The integrated conservation assessments were used to reveal areas in the watershed with a high degree of thematic value overlap. To create integrated assessments, we binned each conservation theme’s aggregated assessment into deciles, multiplied these decile values by weights if specified, and summed across the desired layers. To allow for user-defined weighting between themes, we developed an application so users can view priority areas based on weighted overlap of the themes they are most interested in or that would be most relevant to the strategies they are actively engaged in called, the [Pajaro Compass Interactive Planner](#). To illustrate how different thematic combinations and weights can be used to advance conservation and build partnerships through integrated conservation assessments, we developed three different thematic combinations 1) all six themes, weighted by the primary focuses of the 2015-2016 Pajaro Compass participants, 2) biodiversity and water resources equally weighted, and 3) agriculture and carbon stock equally weighted.