Prioritizing management goals for stream biological integrity within the developed landscape context

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# Supplement

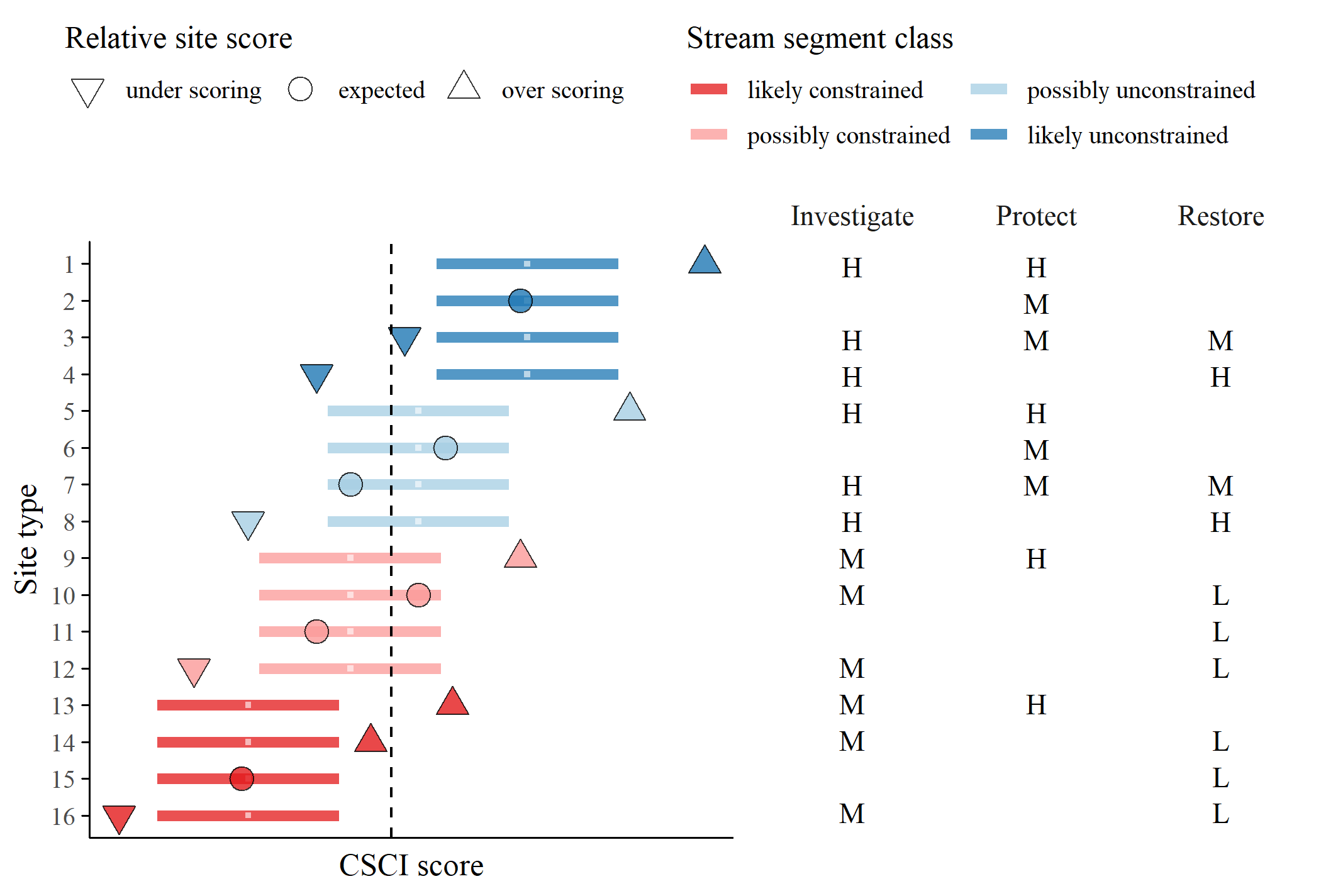


Figure 1 Template provided to stakeholders for prioritization of recommended actions for each stream type. The site types relate to the stream class for the biological expectation (likely unconstrained, possibly unconstrained, possibly constrained, likely constrained), relative site score for the observed CSCI (over-scoring, expected, under-scoring), and location of the score relative to a hypothetical biological threshold (dashed line, above or below). Horizontal lines are the ranges of expected CSCI scores for a site with tick marks for the median. Priority actions defined by stakeholders are shown on the right for each stream type (text descriptions in Table S1). Actions are generalized as investigate, protect, or monitor as high (H), medium (M), or low (L) priority. Blank cells indicate that no additional measures are recommended beyond the baseline monitoring and maintenance practiced at all sites.



Figure 2 Screenshots from the Stream Classification and Priority Explorer (SCAPE) tool used by the stakeholder group to interact with and use results from the landscape model. The application allowed users to visualize results of segment classifications, relative site scores for the CSCI based on the expectation, and recommend management actions for each segment type. The app is accessible at <http://shiny.sccwrp.org/scape/>.

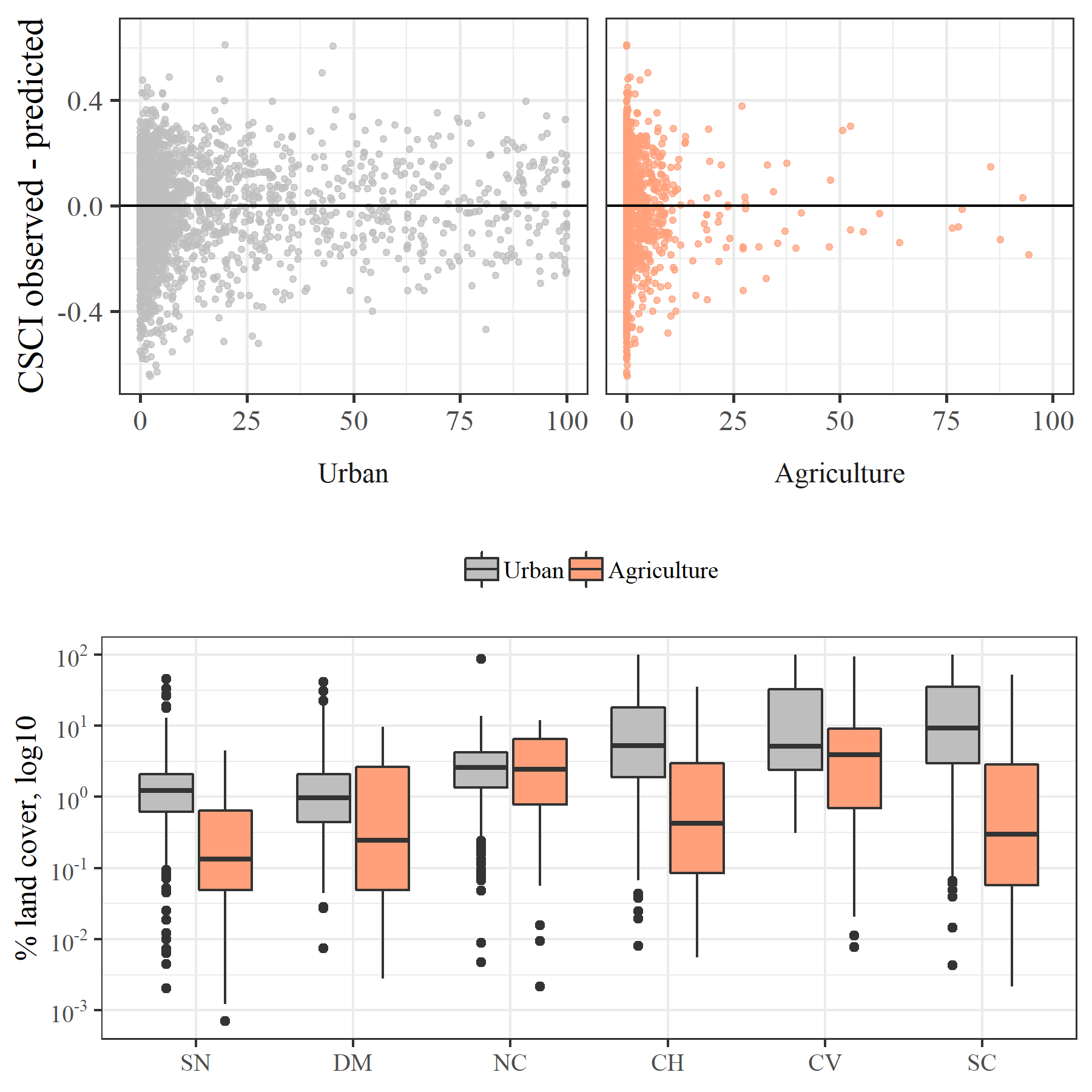


Figure 3 Model performance in relation to land cover and land cover by major regions in California. Model residuals (CSCI observed - predicted) were smaller in regions with more urban or agricultural land use (e.g., SC, CV) and larger in regions with less anthropogenic land use (e.g., SN, DM). CV: Central Valley, CH: Chaparral, DM: Deserts and Modoc Plateau, NC: North Coast, SN: Sierra Nevada, SC: South Coast.

Table 1 Recommended management actions defined by a local stakeholder group for application of results from the landscape model to prioritize stream reaches. Actions were assigned to stream types based on observed CSCI scores relative to the stream expectation from the landscape model (see Figure S1). Actions were recommended in addition to baseline monitoring and maintenance that occurred at all sites.

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| Action | Example activity | Example high priority site | Example low priority site |
| Investigate | Higher frequency of sampling, evaluate additional data (e.g., habitat) | Sites scoring outside prediction interval | Sites scoring as expected |
| Protect | Extra scrutiny of proposed impacts | Unconstrained sites | Constrained sites |
| Restore | Make funding recommendations, prioritize TMDL development | Low-scoring unconstrained sites | Low-scoring cosntrained sites |