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## Participatory Mapping and Modeling of Land Change in Coastal South Carolina: The Johns Island Community Conservation Initiative.

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**Abstract:** Johns Island, South Carolina, is experiencing unprecedented growth that threatens unique natural and cultural resources reflecting the island's rich civil rights era history and a near-contiguous landscape of mixed forest types, wetlands, agriculture and waterways. The Johns Island Community Conservation Initiative was created to advance a comprehensive conservation effort on the island. We a) identified which areas are most important (and why) to Johns Islanders using an iterative, participatory process, and b) modeled future land use change and development scenarios to identify areas at greatest risk. These efforts will lead to the development of a conservation toolkit that reflects both landowner preferences and the legal/financial feasibility of mechanisms for conservation in high-priority areas. Through a series of workshops, we worked with long-term residents to identify, describe and map the natural and cultural resources of Johns Island. The spatial distribution of these resources suggested that they could be conserved by a shift towards in-fill development. We used the FUTure Urban- Regional Environment Simulation (FUTURES) model to simulate development patterns (2010-2060) for business-as-usual, moderate in-fill and ambitious in-fill scenarios. The two in-fill scenarios correspond to a gradient of possible regulatory changes that influence zoning and permitted land use. FUTURES simulates the emergence of land change patterns using three sub-models that project the location, the quantity and the spatial pattern of change. We examined how the important natural and cultural resources identified by long-term residents fared under the three different development scenarios. Results point to trade-offs between development and conservation of locally valued cultural and natural resources. Resources that are lost even under ambitious in-fill policies may be prime candidates for other conservation strategies, such as conservation easements, deed restrictions or fee purchase.

**Keywords:** Participatory modeling; participatory mapping; geospatial; scenario development; alternative futures