

Web-Based Regional Mapping of Plant Invasion Based on Expert Opinion

Running Head: Mapping Regional Plant Invasion

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ABSTRACT

Aim Regional distribution and percent cover information for non-native invasive species are rare in the United States, and methods for collecting this information on a regional scale are needed. Our aim was to develop a web-based method useful for efficiently collecting expert opinion of invasive species percent cover in order to produce regional distribution maps for the Southeast United States.

Location Eleven contiguous states of the Southeast United States (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA).

Methods We developed a web-based mapping system to collect expert opinion from individuals in a variety of federal, state, and local agencies and organizations on the distribution and percent cover of Chinese/European privet (*Ligustrum sinense/vulgare*), kudzu (*Pueraria montata*), and cogongrass (*Imperata cylindrica*). To supplement our collection and validate our methods, invasive species data were extracted from existing databases.

Results Percent cover data were collected for each species across 30% of the Southeast U.S. The web-based mapping system yielded high participation (187 users). The invasion pattern of Chinese/European privet was found to be the most widespread and abundant, while cogongrass was the most limited of the three species. The expert opinion data were internally consistent based on duplicated submissions with similar values (69% for Chinese/European privet, 72% for kudzu, 88% for cogongrass). Accuracy, relative to the U.S. Forest Service data, was also high for Chinese/European privet (64%).

Main Conclusions A web-based mapping system is a novel and effective approach to collect regional distributional data from a broad but loose network of experts. Expert opinion data of invasive species percent cover can complement the point presence data collection often used in invasive plant

management. Regional distribution maps may be useful for cross-jurisdictional management of invasive species and attracting support for containment and restoration programs.

Keywords Chinese privet, European privet, kudzu, cogongrass, regional land cover, Google Maps, invasive species, distribution, abundance, biogeography