

APCRP: Identification of New Insect Agents

Capability

Since the 1960's, substantial effort has been directed toward the identification of insect biological control agents for the management of introduced aquatic plants; however, during recent years efforts have declined. This decline left the need for a coordinated and sustained identification program to develop new agents for a number of aquatic weeds. There are currently several high-priority plants in the U.S. without agents (e.g., Eurasian watermilfoil (*Myriophyllum spicatum*) and monoecious hydrilla (*Hydrilla verticillata*)) and several in need of additional agents for more effective control (e.g., waterhyacinth (*Eichhornia crassipes*) and dioecious hydrilla (*H. verticillata*)).



Figure 1: Collecting hydrilla in South Korean stream.

This work focuses primarily on developing new biological control agents through domestic and foreign exploration, identification of potential agents, and quarantine/ host-specificity studies. Currently, focal weeds include monoecious hydrilla (surveys in China, South Korea), Eurasian watermilfoil (surveys in China), and flowering rush (*Butomus umbellatus*; surveys in conterminous U.S.). Agents are identified using survey techniques developed through collaboration with scientists at USDA-ARS, Chinese Academy of Science, and Korea University. For insect agents, host-specificity will be determined in overseas locations and U.S. quarantine facilities.

Applications

Once operational (i.e., host-specificity confirmed and appropriate release permits granted), agents will be released at field sites in the U.S. and monitored for impacts to target weeds. The release of new agents will enable the development of environmentally compatible, long-term management approaches, thereby decreasing management costs.

Status

Currently, the focus of this work is identification of insect agents of monoecious hydrilla in China and Korea, and documentation of herbivory to flowering rush (*Butomus umbellatus*) in the U.S. This work is funded through FY17.

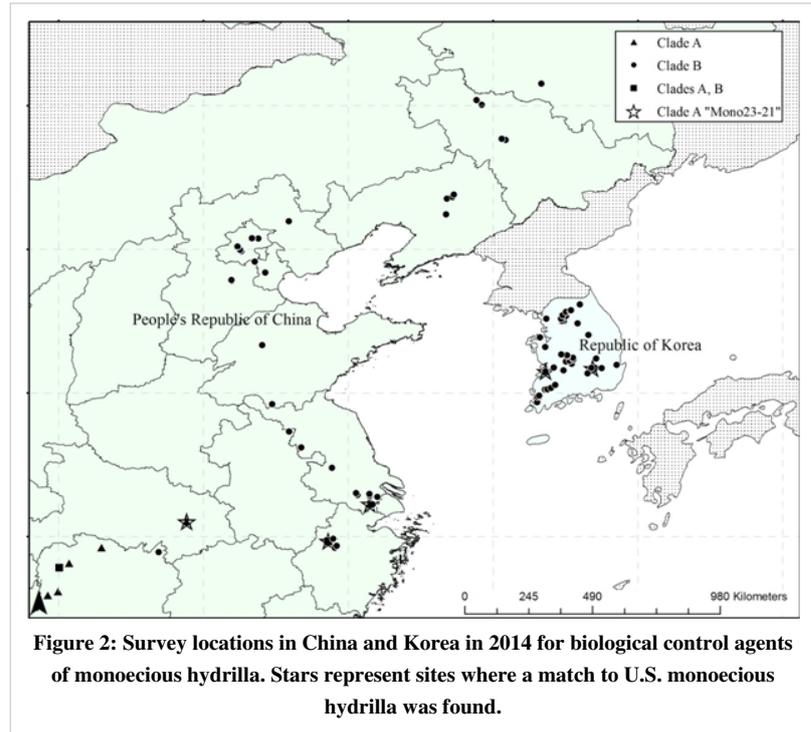


Figure 2: Survey locations in China and Korea in 2014 for biological control agents of monoecious hydrilla. Stars represent sites where a match to U.S. monoecious hydrilla was found.

Documentation and References

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