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ARS' foreign biological control laboratories– gateways to domestic weed control

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USDA has a long history of foreign exploration for natural enemies of U.S. weed pests.

Biological control agents from virtually anywhere in Europe, Asia, or Africa may make their first stop at ARS' European Biological Control Laboratory in Montpellier, France. EBCL is USDA's largest and only wholly owned laboratory on foreign soil for identifying and testing potential beneficial insects for importation into the United States.

USDA established its first foreign laboratory in 1919 outside of Paris, France. In 1958, the Rome, Italy, location began working on weeds, followed by another established in Greece in 1980.

In 1991, the laboratories in Rome and Paris consolidated to form the ARS European Biological Control Laboratory in Montpellier, France, but are still maintaining small substations in Rome and Thessaloniki, Greece.

In 1999, new construction was completed at the Montpellier site, including a 1,600-square-foot quarantine facility for screening insects and a 400-square-foot facility for plant pathogens. Originally, since the laboratory studied insects and weeds present in France, quarantine was not needed. But now the lab handles insects from several continents, so quarantines were set up to protect the French environment.

The lab has introduced and is currently studying nearly 200 biological control agents that help control at least three dozen crop-damaging insects and weed species.

Major weed targets now include leafy spurge, saltcedar, Russian and yellow starthistle, Russian knapweed, and perennial mustards such as hoary cress.

"This unique resource has paid for itself many times over by enabling researchers to find and test natural enemies of weeds," says Paul C. Quimby, the ARS weed scientist who runs EBCL. "With our new quarantine facility, the lab will provide an even greater service."

ARS also supports biological control laboratories in Asia, Australia, and South America.

USDA's Asian Parasite Laboratory, originally located in Japan and then moved to South Korea, performed biological control studies from 1922 to 1993 (with a gap between 1941 and 1975). Researchers at this laboratory helped discover and test agents for control of leafy spurge and saltcedar – today's emerging success stories.

To continue research in Asia, ARS and the Chinese Academy of Agricultural Sciences established the Sino-American Collaborative Biological Control Laboratory in Beijing, China, in 1988. Today the lab works on agents to control saltcedar, leafy spurge, several aquatic weeds, and some insect pests.

In 1989, ARS opened the Australian Biological Control Laboratory near Brisbane, in cooperation with the Commonweath Scientific and Industrial Research Organization (CSIRO). The mission of this lab is to evaluate biological control agents for weeds of Australian and Southeast Asian origin. Researchers there have discovered biological controls for many of the invasive wetland and aquatic weeds in the southern and western United States, such as melaleuca, Old World climbing fern, and hydrilla. Onsite CSIRO quarantine facilities allow ARS researchers to rear insects for preliminary testing.

The ARS South American Biological Control Laboratory near Buenos Aires, Argentina, opened in 1962 to tackle alligatorweed and water-hyacinth. Research there has since expanded to include waterlettuce, tropical soda apple, and other tropical weeds, rangeland weeds, and insect pests such as fire ants.