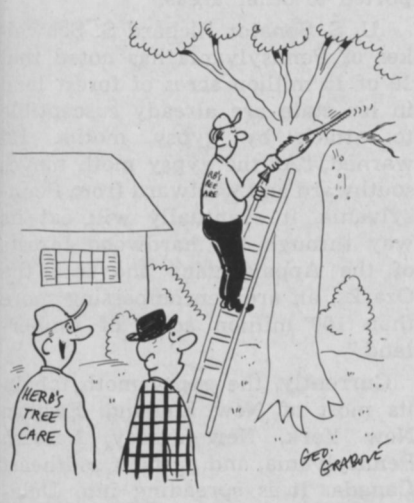
algae to be controlled and the possibility of endotoxins. C. L. Noyes and J. M. Cortell, Allied Biological Control Corp.

Weeds in Turf

—The experimental herbicide RP 17623 (2-tert. butyl-4-(2, 4-cichloro-5-isopropyloxyopenyl)-5-oxo-1,3,4-oxadiazoline) has inherent ability to give major reductions in crabgrass and knotweed from tests in Merion Kentucky bluegrass turf. R. E. Engel and R. D. Ilnicki, Rutgers University.

—Effective crabgrass control with only slight turfgrass injury was obtained from standard materials, such as bandane, benefin, bensulide, DCPA, nitralin, siduron and terbutol. Some thinning of fescue was noted from DCPA. New materials that appear promising and/or deserve further study are CP-53619, D-292, NC-5651, M-3251 and RP-17623. Half rates of bandane, bensulide, DCPA, nitralin and siduron in the second year after previous spring treatment produced good to excellent crabgrass control. Siduron alone or combinations of DSMA with either bensulide, DCPA or siduron produced good to excellent control of crabgrass when treated in the 1-2 leaf stage. When plants were in the 4-5 leaf stage, siduron produced good control and the combination of DSMA plus siduron produced excellent control. John A. Jagschitz, Ag Experiment Station, Kingston, R. I.

—Bensulide, lead arsenate and tri-calcium arsenate treatments for several years in putting-green turf resulted in good control of annual bluegrass *(Poa annua)*. Use of ethrel, MH or MF-415 and 416 appeared promising for preventing seed production of *Poa annua*. John A. Jagschitz.



"Dingwall, there, likes everyone to know he caught a sawfish when he went deep-sea fishing."

WEED CONTROL RESEARCH

A Siberian Fish . . .

A fish from the icy waters of the Amur River in Siberia may provide a partial solution to Florida's problems with water hyacinths and other waterweeds.

The white amur feeds entirely on aquatic vegetation, and scientists at the Plantation Field Laboratory in Fort Lauderdale (an agricultural experiment station of the University of Florida) are hoping this fish will prove practical as a biological control of Florida's waterweeds.

"Of all the biological control agents we have considered," said Robert D. Blackburn, U. S. Department of Agriculture botanist directing the aquatic weed research, "the white amur is the most promising."

The white amur can tolerate an extremely wide range of climatic conditions. It has been used to control aquatic plants in Russia, Czechoslovakia, Poland and India.

"Research seems to indicate the white amur will not spawn in our waters unless artificially injected with hormones," Blackburn said. This would be an advantage for keeping the white amur in check, since the fish grows from 3½ to 5 pounds a year and can reach weights from 50 to 60 pounds.

The Plantation Field Laboratory has acquired 300 white amurs for testing. "We will try them on different plants," Blackburn said, "and stock other fishes with them. We have to be cautious that there's no adverse effect on sport fishing or on the overall aquatic environment from the white amur."

Blackburn pointed out that the white amur is a welcome source of food in some parts of the world. "It tastes a lot like catfish," he said. The white amur will strike artificial lures, so it is a possibility for sport fishing.

Besides the white amur, other possible biological controls are being evaluated at the Plantation Field Lab. Among them are two types of South American snail, the alligatorwood flea beetle.

A Latin Beetle . . .

Weed-eating insects that do not attack useful plants have considerably greater potential for use in biological control programs than has been generally recognized, a U. S. Department of Agriculture scientist says.

Dr. Lloyd A. Andres, an entomologist of USDA's Agricultural Research Service, spoke on the use of weed-eating insects at the annual meeting of the American Association for the Advancement of Science, Boston.

"If one considers that almost half of the 540 major weed species in the United States are introduced plants, and that 13 out of the 15 top weed species originated in other countries, the use of their natural insect enemies—obtained from abroad—will continue to offer a fertile approach to biological weed control," Dr. Andres said. "In the United States, the losses caused by alien and native weeds are believed to equal the combined losses from insects and diseases."

Dr. Andres cited examples of successful results with about a dozen species of weed-eating insects that were brought to the United States for release after scientists had determined that the insects would not harm crops or ornamental plantings. The most spectacular success achieved to date was control of the Klamath weed in California. More recently, highly promising results have been achieved in weed-choked Florida waterways by Dr. Andres' associates who, in 1964, released 250 **Agasicles** beetles that they found in South America.

"Within a year, hundreds of thousands of the beetles developed, and the release site became essentially free of alligatorwood."

The rapid buildup of the beetles permitted collection and distribution of the insects for subsequent release in eight other states. Insects that eat weeds infesting dry rangelands also have been released in western states, Dr. Andres said.