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LAND CRABS IN FLORIDA CAN
BE CONTROLLED BY POISON.
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Farmers in southeastern Florida have been greatly troubled during the last few years by increasing numbers of land crabs, which, it is believed, were introduced into Florida from the Bahamas about 30 years ago. Relatively little is known of their life history and habits, according to the Biological Survey of the United States Department of Agriculture, which recently investigated the damage caused by these destructive pests.

Methods of controlling them now in use are very costly and unsatisfactory. The crabs range from near Palm Beach to Cape Sable along the Atlantic Coast and adjoining keys, being most numerous just south of Miami. They infest low, flat lands where the water-level is from one to four feet below the surface during the dry season. Most of the infested land is close to the coast, but extends inland on low prairies or glades as much as 10 miles or more. These small glades, flooded during the rainy season, are much used after the water recedes for growing tomatoes and other winter truck crops. Consequently these crops are subject to depredations by the crabs.

Inactive in Winter.

During the dry season or winter months, the crabs are relatively inactive, keeping close to their holes and seldom being seen. They do not hibernate much, if at all, as their holes, if closed from the outside, are opened again within a few hours. They are most active at night. It was observed that the smaller crabs occupied the damper areas, often in places where the water level was only a few inches from the surface, while the larger holes were as a rule in higher ground, usually in shady places. In heavily infested spots the number of holes runs between 10,000 and 20,000 to the acre, but an average infestation is between 1,000 and 2,000 holes.

The crabs seem to become really active when the wet season arrives late in May or early in June. From this time throughout the wet season they depend less on their holes, migrating to somewhat higher ground and

taking refuge under tree roots, boards or buildings, in fact anywhere that shelter is afforded during the day. At night or on rainy days, they wander around a great deal. The hard surfaced roads seem to attract them, and motorists have great sport in seeing how many they can run over.

During autumn, toward the end of the wet season, a general movement of the crabs takes place, which is locally called the crab migration. Without any apparent objective, except perhaps higher grounds, the crabs scramble about excitedly night and day, oblivious of danger. At this time they swarm onto the roads and sidewalks, into yards, even up on porches, down into cellars, and up tall coconut trees, at night keeping people awake with their continual scrambling and the clacking of their claws on hard floors and pavements. The opinion prevails that this is their breeding season.

Crabs Eat Young Plants.

Land crabs devour and otherwise injure all kinds of young and tender vegetation. They nip off the growing plants and carry them down their holes to be eaten later. Larger plants are shredded with their claws. The damage to tomatoes is particularly great on account of the value of the crop and because a large percentage of the tomatoes is grown on low prairie land favorable for crabs. Truck crops, ornamental flowers and shrubs, lawns, young trees, and other vegetation are all destroyed. In addition to the loss in crops the presence of crabs on property detracts greatly from the sale value. This loss is very great because the crabs infest most heavily the high-priced estate lands along the water front. Many of these landowners are filling in lower areas and building walls at great expense to keep the crabs out. On one tomato farm of 200 acres near Coconut Grove phosphorus paste is used to poison the crabs at a cost of \$200 to \$300 a week, or over \$2,000 during the season from early in December to late in February. At the United States Department of Agriculture plant introduction gardens, a small terrier dog has been trained quite successfully to keep the crabs out.

Experiments were made under the direction of the Biological Survey in poisoning the crabs with various baits. Spinach leaves and rolled oats dipped in phosphorus paste were tried, also some treated with powdered arsenic and barium carbonate. Other holes were treated with from 5 to 10 drops of carbon bisulphide dropped from a flattened nozzle. The holes were closed immediately in some cases and left open in others.

The best results were obtained where the carbon bisulphide was used and the holes closed. Applied in this way, one application of carbon bisulphide destroyed from 90 to 100 per cent of the crabs. The crabs did not discriminate against phosphorus, but its action was slow. The arsenic baits were not so well taken as the others. Barium carbonate was not discriminated against but it did not kill many of the crabs.

Carbon Treatment Cheaper.

A cost comparison between the bisulphide and phosphorus paste is greatly in favor of the carbon application for a single application. The labor in each instance is about the same, as it was found that broadcasting the bait did not produce very satisfactory results. Applying the bait directly to the hole and closing it seemed a better procedure. The carbon bisulphide method has been recommended to the growers in the past but they considered it too expensive. This was because they bought the material at retail instead of in bulk, and then used half an ounce to each crab hole. It has been demonstrated that this amount is enough for 50 crab holes. Another objection to the use of carbon bisulphide was that it was injurious in large quantities to plant life. It is now believed that by using not over 10 drops to each hole this danger can be eliminated, but careful investigation is needed on this point.

An anti-land-crab campaign would meet with enthusiastic cooperation of landowners and farmers in this region. There have been many requests for assistance sent to the United States Department of Agriculture, and many offers to aid in the work of ridding the country of the crabs.

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