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UTAH STATE UNIVERSITY ECOLOGY CENTER
Terrestrial Arthropods Series No. 7
ARTHROPOD FOOD OF CURLEW VALLEY LIZARDS
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Lizards have been numerous in parts of Curlew Valley, Box Elder County, Utah. Most of the lizards upon which this study is based were collected from 1930 through 1934, in connection with a study of the ecology of the sugar beet leafhopper, Circulifer tenellus (Baker). Following World War I, thousands of acres of land were abandoned which had been cultivated for dry-farm wheat production during that war emergency. To a large extent, these disturbed tracts grew up to Russian thistle (Salsola kali), Cheirinia repanda, Sisymbrium altissimum, Sophia spp., Atriplex rosea and to other plants upon which the beet leafhopper reproduced in great numbers during most seasons. While a number of lizards were taken among or adjacent to such beet leafhopper host plants, others were taken among big sage (Artemisia tridentata), shadscale (Atriplex confertifolia), rabbitbrush (Chrysothamnus nauseosus and C. viscidiflorus), greasewood (Sarcobatus vermiculatus) and other plants in and near our routinely checked study sites.

The lizards were collected by means of a .22 rifle or pistol using crimped shot-shells. The specimens were immediately preserved in 75% to 85% ethel alcohol, after being labeled with string-tags. Examinations of all stomachs (and of many intestines) were made in the University Entomology Laboratory under a wide-field binocular microscope.

Some additional lizard collections were made during other years, including the first season of the "Terrestrial Arthropod Survey of Curlew Valley" in 1969. General areas of the lizard collections include Curlew Valley Junction (once called Showell and now sometimes referred to as Park Valley Junction), Hardup (southwest of Cedar Creek Junction and Kelton Pass), Kelton, Kosmo (old salt works on margin of the Great Salt Lake), Locomotive Springs, Rosebud Ranch and Snowville.

At the present time, Victor Land and Livestock Co. and Taylor Farms cover part of the earlier study area. Also large tracts of formerly submarginal, abandoned farmed lands are now back in big sage, rabbitbrush, cleared and planted to crested wheatgrass and other grasses, or in alfalfa and other crops. Livestock management now has reduced overgrazing of Curlew range lands. Halopteron glomeratus now covers areas of the southern Curlew Valley which are not cultivated but where the soil has been disturbed. For this reason, these lizard food studies represent the terrestrial arthropod situation as it existed about 40 years ago. All species of lizards studied are carnivorous, feeding on insects and available related arthropods. Parasitic nematode worms were present in many stomachs. The small quantities of sand, soil, and small plant fragments found were assumed to have been ingested by accident during the capture of prey.

Crotaphytus wislizenii wislizenii Baird and Girard. This common Leopard Lizard is observed about rocky foothill slopes as well as in semi-cleared areas of the valley. The combined contents of thirteen stomachs examined included 24 grasshoppers, five Trimerotropus sp. and three Hesperotettix viridis (two nymphs), two larval Lepidoptera (in one stomach), one Coleoptera, family Carabidae, two Hymenoptera, Pogonomyrmex sp. harvester ants. The lizards were taken in areas where big-sage, rabbitbrush and Russian

thistle were the chief vegetation.

Sceloporus graciosus graciosus Baird and Girard.

The sagebrush swift inhabits the valley floor and adjacent slopes, being most numerous in the southern half of Curlew Valley. While typically a ground lizard, I have observed individuals to have climbed up in sagebrush, chiefly Artemisia tridentata, and rabbitbrush, Chrysothamnus nauseosus and C. viscidiflorus, 12 to 14 inches above the soil surface. When a grasshopper or other large insect was captured, this lizard would usually beat it back and forth on the ground until the prey was subdued. Insects, spiders, and occasionally other terrestrial arthropods made up the food of this common lizard. This species has been most apparent where brush is short and scattered.

Arthropod food of this species, recognizable in the 165 stomachs examined, consisted of: Orthoptera (56 stomachs), 58 recognizable grasshopper adults or nymphs, including Melanoplus sanguinipes, M. femur-rubrum, Aulocara elliotti, Trimerotropus and one Gryllidae, one Isoptera, termite, one Neuroptera, two Odonata, Zygoptera, 94 Hemiptera in 30 stomachs, included Miridae, 54 false chinch bugs, chiefly Nysius ericae, 15 Gecoris sp., four Pentatomidae including Chlorochroa sayi, Nabis alternatus, Lygaeus kalmii, Phymata spp., Lygus spp., and Lygaeus reclinatus; 41 stomachs contained 197 sugar beet leafhoppers, Circulifer tenellus, 121 of them being nymphs, plus four other leafhoppers including Thamnotettix venditarius, Phlepsius spatulatus, two Fulgoridae and one Aphididae; 48 stomachs held recognizable Coleoptera, including 14 Carabidae in 13 stomachs, nine Coccinellidae in six stomachs (including Hippodamia convergens, H. lunatomaculata, Coccinella perplexa), three Scarabaeidae, four Elateridae, three Curculionidae, 20 Chrysomelidae (in three stomachs), one each of Tenebrionidae, Cleridae, and Histeridae, and four larval Coleoptera in three stomachs, 101 Lepidoptera in 56 stomachs,

99 of them caterpillars with one stomach containing 10 diamond back moth larvae, Plutella xylostella, a species common on wild mustards in spring, 27 Diptera in 15 stomachs (including two maggots), Asilidae, Muscidae, Sarcophagidae, Tipulidae, Tabanidae, and Calliphoridae; 114 stomachs contained 768 recognizable ants (plus lots of fragments), including 740 Pogonomyrmex owyheeii and Formica spp., 16 wild bees, one a Mutillidae, one Ichneumonidae, one Braconidae, three Sphecidae, and one Chrysididae; 20 spiders were present in 18 stomachs; eight mites found in three stomachs. Great numbers of insect fragments were also present.

Uta stansburiana stansburiana Baird and Girard. The Northern Ground Uta or Brown Shouldered Uta.

This common little lizard was taken largely among sparse Artemisia, Sarcobatus, Russian thistle, mustards, Atriplex including shadscale and other low vegetation and on rocky, as well as flat, sandy soils. Occasional individuals would rest or climb on steep to vertical rock surfaces. During the 1930 - 1934 years of great sugarbeet leafhopper (Circulifer tenellus) population buildups, these lizards frequently were very numerous in late summer and fall beneath still succulent Russian thistle and Atriplex plants. One hundred or more recognizable specimens of this leafhopper have sometimes been present in individual Uta stomachs. Curlew Valley no longer has the many thousands of acres of Russian thistle and wild mustards, on which this virus-spreading leafhopper would build up in great numbers, during the years when dry farmed land was abandoned. A great change has occurred in the flora of the northern portion of Curlew Valley as it exists in Box Elder County, Utah, since the intensive ecological studies were made on the beet leafhopper and its desert breeding grounds from 1925 to 1943. Seventy-seven stomachs were examined from Hardup and 33 from Kelton areas (both now ghost towns).

Insect food still recognizable in the 125 Uta stomachs consisted of:

two Thysanura, five Collembola, four Odonata, Zygoptera, 68 Orthoptera, 35 of them grasshoppers, chiefly nymphs, 14 Isoptera in two stomachs, 353 Hemiptera, including 91 nymphal and adult Geocoris, 109 false chinch bugs largely Nysius ericae, Lygus, Nabis, three Pentatomidae, one Scutelleridae and numerous fragments, 768 Homoptera, 651 leafhoppers, of which 643 were sugar beet leafhoppers, three Membracidae and a few Psyllidae and Aphididae, seven Neuroptera, including two larvae, 77 Coleoptera, including 12 Carabidae, four Histeridae, two Chrysomelidae and one Scolytidae, 40 Lepidoptera, nearly all caterpillars, 58 Diptera, including Asilidae, Chloropidae, Pipunculidae, Sarcophagidae, Tachinidae, Calliphoridae, plus five larvae and two pupae, 665 Hymenoptera including 211 ants - largely Pogonomyrmex owyheeii and Formica spp., two Braconidae and one Ichneumonidae, 34 spiders, two mites, and one small scorpion from a mature lizard taken at Locomotive Springs in a shadscale area October 12, 1932. Many insect fragments, occasional plant fragments and sand particles also were found in stomachs. Observed feeding was from the ground surface or within reach of the tongue or resting on accessible rock facings, rarely climbing up into plants.

Phrynosoma douglassii ornatum Girard.

The Salt Lake Short-Horned lizard is present in Curlew Valley, being most commonly observed near ant nests in Atriplex, Gutierrezia, Artemisia and in the 1930's in Russian thistle associations. Four specimens were collected at Cedar Creek, Hardup, and Snowville. Arthropod stomach contents included one sugarbeet leafhopper, four Coleoptera, two Chrysomelidae, and one Carabidae, 146 Hymenoptera, 143 being ants, largely Pogonomyrmex owyheeii and Formica spp. Insect fragments were numerous in the intestines.

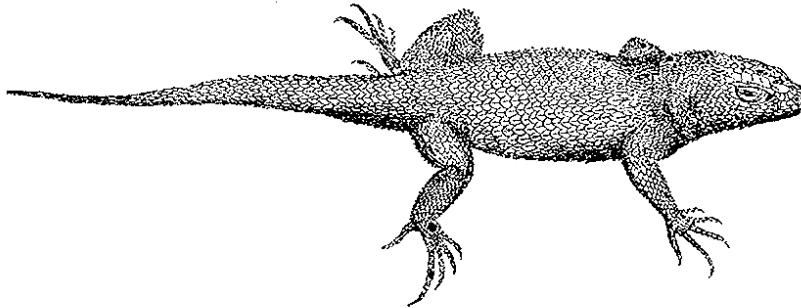
Phrynosoma platyrhinos platyrhinos Girard.

The Desert Horned Lizard occurs over the general area characteristic of

Curlew Valley. Only four of the specimens taken were examined for food, these being from Hardup, Locomotive Springs and Kosmo. Recognizable arthropod food consisted of one Hemiptera, Pentatomidae, three Coleoptera including Carabidae and Scarabaeidae, 96 Hymenoptera including 92 ants, largely harvester ants, Pogonomyrmex owyheeii and Formica spp. The specimen taken at Locomotive Springs August 8, 1932 contained 25 parasitic roundworms, while four such worms were found in an individual taken at Kosmo on August 20 of that year.

Eumeces skiltonianus(Baird and Girard).

The Common Western or Skilton Skink occurs in Curlew Valley. On May 5, 1934, Lowell Cutler collected a living specimen from beneath a stone, east of Snowville. By the time it reached me any food it had ingested was thoroughly digested and even the intestine was nearly empty.



Sagebrush Swift

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