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Abstract Papers

plete second generation. This was demonstrated by the values found for years with low and high populations. A high value went with a large population and a low value with a dropping off of the population.

The food habits and temperature relations suggest an answer to the questions about the box elder bug. The bug is found on the ground and low vegetation during the first part of the summer where he feeds on the seeds lying on the ground. Beginning about the middle of July most of the adults and late instars are found on the pistillate box elder trees where they feed on the developing seeds. The aggregations are found only in areas exposed to the direct sun for most of the day. The size of the population is determined by the degree of completeness of the last generation, which in turn is determined by the number of days during the summer with high temperatures.

THE BIOLOGY AND CONTROL OF THE FOREST TENT CATERPILLAR

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SOME STUDIES OF FACTORS AFFECTING THE LOSS OF TREES

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A VEGETATIONAL ANALYSIS OF THE CARLOS AVERY GAME REFUGE, ANOKA COUNTY, MINNESOTA

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PLANT GEOGRAPHY AND ECOLOGY OF THE ARCTIC SLOPE OF ALASKA

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ABSTRACT

The Arctic slope of Alaska is located between the Alaskan-Canadian border and Cape Lisburne, and from the Brooks Range north

to the Arctic Ocean. It constitutes one-seventh of Alaska, and is about the size of Minnesota.

In this area the climate is severe with cold winters up to 9 months long, and short cool summers with an average temperature of 40° to 50°F. There is less than 8 inches of precipitation per year, the greatest amount in summer. Most of the ground is underlain with frozen soil which causes a polygonal pattern on the surface. The area has three physiographic provinces as follows:

The coastal plain is very flat, poorly drained, and about 20 per cent lake-covered; it has been submerged beneath the sea in fairly recent times. The most extensive plant community here is the bog meadow formed by species of *Carex* and *Eriophorum*. Well developed aquatic communities are found in the lakes.

The foothills are rolling uplands which have had a subaerial history since Cretaceous times and have not undergone glaciation. A well-developed soil has formed. Niggerhead tundra meadows cover about 60 per cent of the area, in which the most important species is the tussock-forming *Eriophorum vaginatum spissum*. Along major streams there are willows and poplars to 25 feet high.

The Brooks Range province is a mountainous area with small glaciers on the higher peaks. Various plant communities are found on the outcrops and scree slopes which are usually related to the underlying rocky material. Soil is poorly developed because of erosion and glaciation.

The various lines of plant succession lead generally toward the niggerhead meadow.

The flora of the Arctic slope contains more than 450 vascular plants. The largest families represented are the *Compositae, Cyperaceae,* and *Poaceae* and the largest genera are *Carex, Salix* and *Saxifrage,* in that order.

This study has increased the known flora of this area by 75 per cent, as well as adding greatly to the knowledge of distribution, habitat, elevational range, phenology, and abundance of species in this area.

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THE EXISTENCE OF A TOXIC PRINCIPLE IN RAW SOYBEAN MEAL

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MEIOSIS OF SAMBUCUS PUBENS

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ABSTRACT

Winter twigs of *Sambucus pubens* were collected on three occasions during March, 1951. They were placed in water and within a week the buds grew rapidly and underwent meiosis which extended over a period of approximately eight days. Acetocarmine smears were made after pretreatment of the buds. *Sambucus pubens* has a chromosomal number of 36, whereas most of its relatives have 18. Sax reported that the 36 chromosomes of *Sambucus pubens* might be due to allopolyploidy arising from a cross of two naturally occurring species of Sambucus. The present observations of the meiotic process disclosed nine large chromosomes at diakinesis and metaphase I. Therefore, there is indication that *Sambucus pubens* represents, not an allopolyploidy as Sax suggested, but an autopolyploidy.

A STUDY OF MICROSPORE QUARTET TYPES IN CORN HETEROZYGOUS FOR TRANSLOCATIONS

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In corn, the sixth chromosome pair is associated with the nucleolus. This is due to the presence of a nucleolar organizing region located on the short arm just back of the terminal satellite portion. Normally, when meiosis is completed, each of the four spores of the resulting microspore quartet will have one number 6 chromosome and consequently one nucleolus. If, however, a spore of the quartet fails to receive an organizer the nucleolar material will remain scattered in several small bodies.

A plant heterozygous for a translocation between two different chromosomes forms a ring of four chromosomes at metaphase I. When one of these chromosomes is number 6, a study of spore quar-