

Plants of the Rose Family in North Dakota

By
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WILD roses are familiar plants but classification of the species has long been an involved problem. Our small prairie form has mostly been called *Rosa arkansana*. Along the streams in the eastern part of the State, *Rosa blanda*, which has scarcely any spines except on young sprouts, is common. *Rosa woodsii*, the common plant from the Missouri River westward, is very spiny. *Rosa acicularis*, which occurs in the Pembina and Turtle Mountain areas, resembles *R. blanda* but is quite prickly.

The family is a large one and roses are scarcely typical members. In fact, the group is so heterogenous, that hardly any character is more than fairly constant. Stamens and pistils are usually many, leaves are usually compound with well developed stipules. Many authors prefer to place the plums and cherries in a separate family; also, apple, hawthorn and Juneberry in a third family. With these groups removed, the remaining plants still are diverse in character.

Most abundant and perhaps most typical, are the cinquefoils. This name is from the French and means "five-leaved," referring to the five leaflets of some species. Other species have three, seven or more leaflets (Figure 1). There are about 20 species of cinquefoil in North Dakota, and like the roses, they are often difficult to identify satisfactorily. One of the commonest one (*Potentilla monspeliensis*, now called *P. norvegica*!) is a familiar weed in meadows, old fields and neglected ground. The first year it produces a tuft of leaves very like those of strawberry. The second year, a widely branched stem, one to two feet high bears many small, yellow flowers.

Most of our cinquefoils are prairie plants, often with silvery leaves. One which is called Silverweed (*P. anserina*), grows in low places and has much larger leaves, consisting of 3 to 10 pairs of leaflets. The leaves are very white below and the plant spreads by runners like a strawberry. The flowers are golden yellow, about

one-half inch wide, but not numerous. Tall Cinquefoil (*P. arguta*) has a rough green leaf, somewhat like that of Silverweed in form, but the plant produces a stout upright stem. The flowers are cream-colored and rather showy, in terminal, rounded clusters. It is a widely distributed plant, frequent on the lower prairies.

A really worth while ornamental is the Shrubby Cinquefoil (*P. fruticosa*) found on some buttes in western North Dakota and widely distributed through rocky, wooded regions of northern America, Europe and Asia. It produces a dense bushy growth, one to two feet high and the golden yellow flowers appear practically all summer. The leaf form is somewhat like that of alfalfa. A small, creeping, woody species (*P. tridentata*) with white flowers has been found at one locality in the Pembina Mountain area. It is quite common in rocky woods in the Eastern States.

The cinquefoil flower has many pistils, each of which ripen into an achene, a tiny, one-seeded fruit.

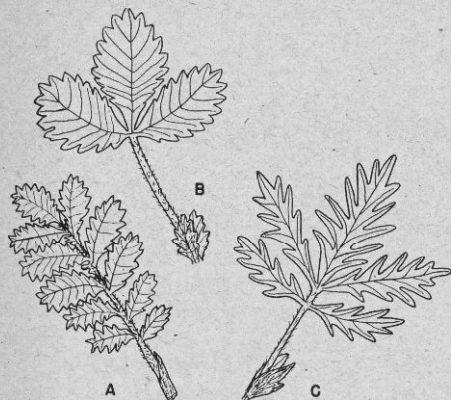


Figure 1. Leaves of three kinds of cinquefoil. A with 9 leaflets, B with 3, C with 5. Note the pair of stipules at the base of the stalk.

about 200,000 of which will weigh an ounce. The "seeds" on the strawberry are the same thing, the fleshy part being merely the enlarged stem. In blackberries and raspberries, the outer part of each pistil becomes juicy, the stem tip comes off with the berry in case of blackberries, and is eaten but it remains on the plant in case of raspberries. There are no wild blackberries in North Dakota, though at least one species comes close to our eastern border. Red raspberries are common. Black raspberries have been found in two or three places but probably were introduced.

A few other members of the family are similar to the cinquefoils. One of the most common is called *Avens*, a name from "Old French" according to the dictionary, but one which I have never heard used. To most people they are just "sticktight" or "beggar's lice." The tip of each pistil remains as a hook, and when a person walks through some of the plants in the woods, clusters of the hooked fruits catch in his clothing. The commonest species is *Geum strictum*, with yellow flowers, but a white flowered one (*G. canadense*) also occurs. Even better known is

the Torch Flower or Prairie Smoke, also called "maiden's hair" and "old man's whiskers" (*G. triflorum*), in which the pistil tip becomes long and feathery instead of hooked. This is one of our most characteristic prairie flowers. It bears drooping crimson flowers from late April to June. The feathery fruit tips have delicate, flame-colored tints in early maturity.

Another, less common "sticktight," is *Agrimony*, in which the calyx develops hooks and the entire structure, enclosing only about two seeds becomes a bur. It occurs in woods or brush. The small yellow flowers are borne along slender branches and the leaves are somewhat like those of tall cinquefoil.

Still another group of the family is represented by our native *Spiraea*. The flower contains about five pistils, each of which develops into a dry fruit which splits down the inner side to release the several seeds.

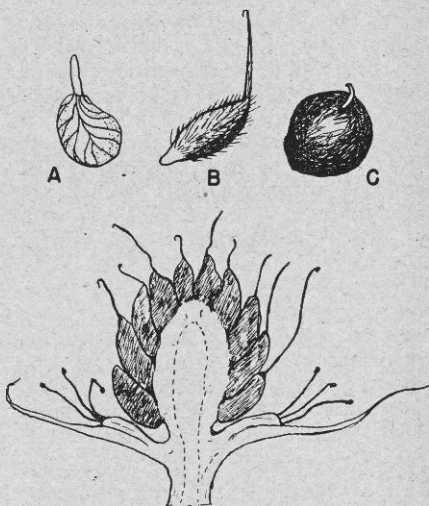


Figure 2. Section through flower of cinquefoil type in fruit development. Note stamens below fruits just above sepals attached to rim of receptacle. Above, single mature fruits of: A, rough cinquefoil; B, avens; C, blackberry.

The feature which is general for the family is that the stamens are attached to the calyx or to a rim projecting from a cup-shaped tip of the stem. This is well illustrated in the rose, where the pistils are attached to the lower part of the cup, the stamens, sepals and petals at the top. The wall of this cup becomes the fleshy part of the mature fruit. The individual pistils develop into one-seeded fruits which are called nutlets because of the hard thick covering.

In the apple group, the pistils are only two to five and are grown together at the base. The stem tip

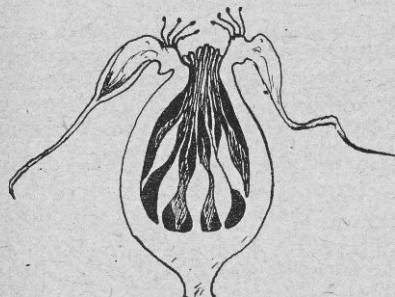


Figure 3. Section through developing rose fruit. Here the stem tip is vase-shaped, surrounds the single fruits and becomes fleshy.

surrounds them and it becomes soft and fleshy in fruit. Our only native species are Juneberries and hawthorn. Both of these groups are puzzling as to identity of species. The simplest treatment is to regard the Juneberries as a single species and the hawthorns as chiefly one (*Crataegus rotundifolia*) which ripens early and has small, soft fruits. A second hawthorn (*C. mollis*), occurs in the eastern part of the State. The fruit is half to three fourths of an inch in diameter, ripens late and remains firm. It is quite worth growing as an ornamental and for the fruit. The cotoneasters, now commonly grown as ornamentals, are members of this group.

The flowers of plums and cherries have a single pistil and it is the only part which develops in the fruit. The sepal lobes, petals and stamens are borne on a thin cup which falls or dries up after blooming. The wild plum and chokecherry are our only common species. The Sand Cherry is found locally, mostly in the southern part of the State. The Bird Cherry or Pin Cherry occurs in wooded areas in the northeast.

Planning the Fight Against the European Corn Borer in the North Central States

By

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THE corn breeders and some of the entomologists concerned with the development of corn resistant to the European Corn Borer, recently held a conference at Purdue University, Lafayette, Indiana. The North Dakota Agricultural Experiment Station was represented by the writer. Research workers from the United States Department of Agriculture and from several North Central states attended. Director H. J. Reed of the Indiana Agricultural Experiment Station represented the directors of the North Central Experiment Stations of the United States at this conference.

The purpose of this meeting was to familiarize all the corn breeders, entomologists, and others concerned with the spread of the corn borer and with the extent of the damage it is causing;