Distribution. Southwestern Saskatchewan is a region of nearly horizontal or very gently dipping strata. As a result, the younger formations are largely restricted to the uplands or plateaus, the intervening lower areas being carved down into the Cretaceous rocks. The uplands (figure 1) are three in number; the Cypress Hills on the southwest, extending into Alberta; the Swift Current Plateau, northeast of the Cypress Hills; the Wood Mountain Plateau, extending eastward into the Willowbunch uplands. Paleocene deposits are not confined to these plateaus but occupy additional areas of moderate elevation, and in south-central Saskatchewan, on the north flank of the Williston basin, they are widespread as the surface bed-rock.

General sequence. The Tertiary section of southwestern Saskatchewan is divisible into four formations or "beds" (figure 2); these are the Ravenscrag formation (Paleocene), the Swift Current Creek Beds (Eocene), the Cypress Hills formation (Oligocene) and the Wood Mountain gravel (Miocene). The Ravenscrag formation differs from the other three in that it is the uppermost unit of the regional section and from a depositional viewpoint is more closely related to the underlying Cretaceous and older sediments than it is to the younger Tertiary. The latter are predominantly conglomerates or gravels, deposited by streams flowing eastward from the comparatively new Rocky Mountains, whereas the sediments of the Paleocene are fine-grained clastics, the result of deposition in streams, floodplains and lakes of a broad region not much above sea level. The great change in the sedimentary history of southwestern Saskatchewan came during the Eocene, when the eastern ranges of the Rocky Mountains were uplifted to form a source of detritus which was spread eastward over the elevated plains. Later episodes of regional uplift served to complicate the record without changing the general conditions of deposition.

Ravenscrag formation. Portions of this formation were first described by G. M. Dawson (1875) under the not inappropriate name of Lignite Tertiary. A more extensive account was given by R. G. McConnell (1886), who grouped these beds with an uppermost part of the Cretaceous under the name Laramie. R. Rose (1916) applied the quite appropriate name Fort Union to what is now called Ravenscrag. The latter name was first used by N. B. Davis (1918) but unfortunately that author did not recognize that there were two zones of kaolinized clay, the true Whitemud of Cretaceous age and the false Whitemud, now called the Willowbunch member of the Ravenscrag. Where Davis found Ravenscrag beds below the Willowbunch member he thought he was dealing with pre-Whitemud sediments, and applied the name Estevan formation to them. Into the same group he placed the true pre-Whitemud sandy beds, now called the Eastend formation. F. H. McLearn (1930) established the true position of the Willowbunch member and was able to discard the name Estevan. He applied the name Ravenscrag to all of the sediments above the purplish clays of the Whitemud (later called Battle formation). A general account of the Ravenscrag formation according to this concept was given by McLearn in Fraser et al. (1935). This was revised somewhat by C. M. Furnival (1946), who separated the lower, dinosaur-bearing, Lance-equivalent portion as the Frenchman formation.

The Ravenscrag formation underlies the entire area of the Cypress Hills, outcropping on the higher flanks and in the valleys that dissect the plateau. The upland areas to the east contain lower portions of the formation, although the principal outcrops expose mainly the underlying uppermost Cretaceous. Intermittent exposures of Ravenscrag are present on the south side of Pinto Butte and in the badlands of Morgan Creek west of Killdeer. Very extensive exposures permitting continuous structural surveys are to be seen in the former drainage channels now occupied by Twelve Mile Lake, Willowbunch Lake and Big Muddy Lake. It is in the Big Muddy valley from the town of Willowbunch to the crossing of the International Boundary east of Big Beaver that the best exposures of the Willowbunch member are to be seen and here the vertical interval to the underlying Whitemud clays can be measured. Very high portions of the Ravenscrag formation are present in the Estevan coal field of southeastern Saskatchewan, near the axis of the Williston Basin, but this lies outside the area of the present discussion.

The sediments of the Ravenscrag formation are fine-grained clastics with clayey silts and arenaceous clays predominating. Fine sands are present in places, usually in lenticular distribution, and sometimes forming small cliffs. Kaolinized clays are locally present, the most characteristic zone being that of the Willowbunch member, but similar occurrences are known at other stratigraphic levels within the formation. Bentonitic clays are relatively rare. The rocks are predominately soft, and weather readily, but in places they are indurated by calcareous or