

present time, convinces us that at the time of white settlement the country teemed with wild life and the so-called "balance of nature" was probably more nearly perfect than it has been anywhere in the world since that time, and that during the past three hundred years the faunal changes in the Americas have been more rapid and sweeping than during any similar period in the world's history. The rapid development of the country in agriculture, lumbering, and mining has changed the face of the wilderness and destroyed natural habitats. The development of railways, and within the past thirty-five years the spread of the motor car, with accompanying extension of roads into previously inaccessible regions, and improvement of fire-arms at the same time, have enormously accelerated the destruction of game species. The modern demand for furs, with consequent high prices, has enabled the modern trapper to establish his trapping bases hundreds of miles beyond ordinary transport by means of aeroplanes. The compiler of faunal lists soon finds that his records and data approach the status of ancient history rather than accounts of conditions at the present time. The list of dangerously reduced species is disgracefully large, but comparatively few species have recently been totally exterminated, although some of the most valuable and interesting representatives of our native fauna are now absent from a large portion of their former range.

Astronomical or Geographical Zones.

While astronomical or geographical zones can be mapped by parallel lines of latitude on the earth's surface, with the equator at zero, the Tropic of Cancer at $23^{\circ} 26' 56''$ north latitude marking the southern limit of the North Temperate Zone, and the Arctic Circle at $66^{\circ} 33' 04''$ marking the southern limit of the Frigid Zone, these boundaries come very far from being satisfactory boundaries for the life zones. At the same altitude, temperatures average higher toward the equator and lower toward the poles but so many diverse factors enter into climate, that there is little regularity in isothermic lines.*

Altitude is very important. Temperatures fall with elevation so that snow-capped mountains are found near the equator. The warm current of the Gulf Stream carries vast quantities of warm water to the western coast of Europe, and the Greenland current carries cold water south to the coast of Newfoundland, so that England has a comparatively mild climate while Labrador on the same latitude has virtually an Arctic climate. Warm ocean currents in the Pacific ocean bring a comparatively warm and humid climate to the coast of British Columbia and southern Alaska. The condensation of humid atmosphere on ice-fields as on the "banks" of Newfoundland, or on mountain tops as on the coast of British Columbia, brings abundant rain or fog, while high mountain ranges shut off moisture-laden clouds from certain interior districts and produce deserts as in Nevada or semi-arid valleys, as in the interior of British Columbia.

* Passing through the strait of Belle Isle at about 52° N., on July 20, 1928, the writer observed snow-banks in gullies behind an island on the north shore. At Saskatoon, in the same latitude, grain is beginning to ripen at that season. Even in the Mackenzie River delta, over eight hundred miles farther north, well beyond the Arctic Circle, the weather is usually much warmer than at the strait of Belle Isle at that season. Winnipeg but rarely, and only in midwinter, experiences a drop to 50° below zero F. The Mackenzie Delta minimum may not be much lower, but winter is seven or eight months long. The Mackenzie river extends 2,525 miles from mouth to source, and is navigable for 1,400 miles north of Fort Smith on the 60th parallel. The Mackenzie brings warm water two thousand miles north in spring, modifying the climate along the river in early summer, and accounting for a narrow tongue-like extension of the Hudsonian Life Zone with large straight spruce trees growing about two hundred miles north of the Arctic Circle.