Greenland is almost exclusively located within the Arctic climatic zone, geographically defined as the northern global area in which average temperatures during the warmest month of the year (usually July) are below 10°C. This temperature boundary is more or less coincident with the timberline. The arctic climatic zone is subdivided into a high arctic zone, in which average temperatures during the warmest month lie below 5°C, and a low arctic zone, where average temperatures during the warmest month lie between 5°C and 10°C. Between the temperate, coniferous zone (in which forestry is economically feasible) and the arctic climatic zone lies a narrow transitional region termed the subarctic climatic zone. Here, average temperatures during the warmest month lie slightly above 10°C and the growth season is just long enough to allow the development of low, scattered forest. In Greenland the subarctic zone is only found in the interior parts of the southern fiords, and the tree involved is generally Betula pubescens (Born & Böcher 2001).

Distribution types

For the purpose of summarizing distribution patterns of Greenland animals the country has been divided (J. Böcher 1988) into a number of “faunal districts” as shown in Fig. 1. These are admittedly fairly crude, but are in agreement with those proposed by Salomonsen (1981) and partly with currently accepted floristic provinces and districts (T.W. Böcher et al. 1968). The districts may be characterized as follows: S comprises the climatically most favourable, subarctic part of Greenland where Betula pubescens, Sorbus groenlandica and Salix glauca form small woodlands (Fig. 3–1) in inland areas. SW is the low arctic West Greenland with a relatively mild, oceanic climate along the coast and a continental climate with fairly warm, dry summers in the interior. SE is the low arctic East Greenland with a cool, humid oceanic climate. NW and NE are relatively dry, high arctic areas. N is the extreme High Arctic, also with a dry climate and comprising arctic desert. The northern boundary of SW and SE coincides approximately with the northern limits of real willow coppice and herb slope communities (T.W. Böcher 1979, 1981; Salomonsen 1972, 1979). SW is subdivided into sSW and nSW, especially according to the presently known distribution of a number of insects.

Concerning general distribution the following terms are used: Circumpolar (all arctic areas), Holarctic (both nearctic and palaearctic areas, possibly with essential absences in an otherwise circumpolar range), Nearctic (North America), Palaearctic (Europe + northern Asia + northern Africa).

Greenland is traditionally included in the Nearctic Region, implying that the occurrence of a species in Greenland automatically renders it ‘nearctic’. In this book Greenland is considered a zoogeographical unit of its own (Böcher 1988, Bergersen 1955). A palaearctic species occurring in Greenland, but not in North America, is accordingly not termed holarctic.

The climatic zones outside Greenland are given as follows: Northern temperate or boreal (with coniferous forests), southern temperate (with deciduous forests), and Mediterranean (primarily with maquis).

Biodiversity

There is a general tendency towards decreasing biological diversity with increasing latitude (Downes 1964, Danks 1981), and Greenland is almost entirely within the Arctic Biome (Born & Böcher 2001). However, this decline is very variable between different taxa, but unexpectedly high in most groups of insects when compared with other areas at similar latitude. For instance, the number of Greenland butterflies (Papilionoidea) amounts to only 9% of the butterfly fauna of arctic North America (Danks 1981), and Coope (1986) showed that Greenland has only 17% of the expected number of Coleoptera. The ground beetles (Carabidae), generally the most successful beetle group in the Arctic, have only four Greenland representatives – against at least 50 in the arctic part of Fennoscandia (Lindroth 1983). On the other hand, the Diptera are comparatively well represented, especially Chironomidae and Muscidae, which are still more dominating the more extreme and high arctic the biotope. Also the soil fauna, collembolans and mites, is very well represented even in the High Arctic, often with immense numbers per square metre. A number of globally important taxa are totally absent from the native fauna of Greenland (e.g., Diplopoda,
**FIGURE 1** Map of Greenland with the geographical names used and the zoogeographical zones indicated. Inset: outline map showing principal long/lat coordinates, and position relative to adjacent land-masses (Canada, Iceland, Spitsbergen).