

HARD FERN.*

This fern (Fig. 20) forms a carpet-like mass 12 in. to 18 in. tall, fairly dense to the bottom, which is often filled up with dry dead fronds of previous years' growth. It spreads from out of the shelter of logs or stumps, or from points of establishment on dry open knolls. Its spread is by means of branching, wiry, dark-coloured rhizomes, which creep over the surface of the soil. In this surface-growing rhizome lies the greatest weakness of the plant. Stock injure it readily by their treading, and it is particularly liable to destruction by fire in a season when the foliage is sufficiently dry to carry a hot fire (Fig. 21). The time of burning hard fern is important. A hot fire is essential,

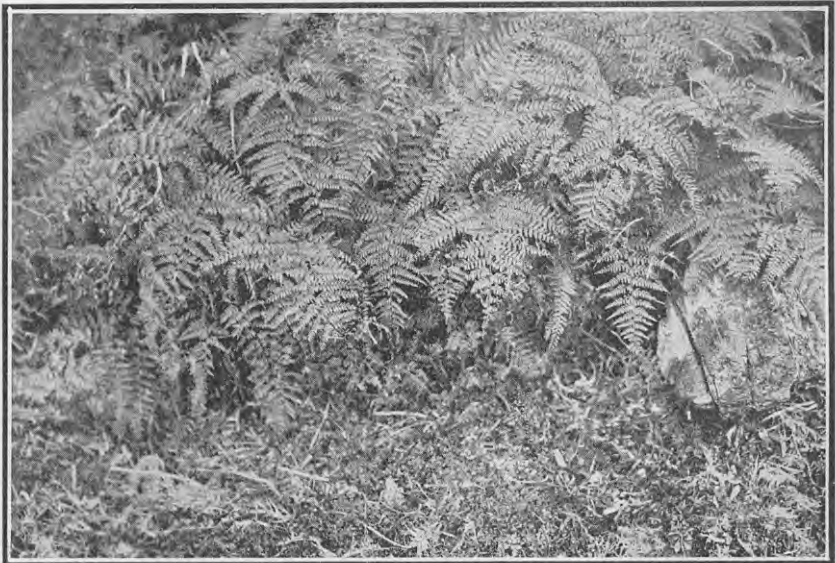


FIG. 20. EDGE OF A HARD-FERN PATCH.

The grass sward is here very closely grazed down, a condition favourable for the outward spread of the fern.

[Photo by E. Bruce Levy.]

and burning should not be carried out until the soil-surface is well dried out. Early spring burning is often practised owing to the fact that during a severe winter the previous year's fronds are all dried up, being killed by frost. These carry a surface fire, but the soil-surface is usually wet in the spring, so that the surface rhizomes remain undamaged and new fronds come away soon after the fire (Fig. 22).

Every endeavour should be made to get grass established on the hard-fern burns, so that stock may be enticed there and thus damage any small pieces of fern that may have been missed by the fire. The spring-time does not afford opportunities for the establishment of grass

* For botanical description and illustrations of hard fern, common bracken-fern, and water-fern see "The Bracken-ferns of New Zealand," by Esmond Atkinson, this *Journal*, January, 1923.