ABORIGINES AND FIRE IN THE LOWER HUNTER

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PART III: Effects of Aborigines' Use of Fire on the Natural Environment

Discussion:

In the preceding parts of this article, the Aborigines' use of fire in the lower Hunter has been presented. In this part, an assessment will follow of the effect such use had on the natural environment.

There is evidence that the vegetation structure in the Hunter Valley, as with other parts of Australia, had been modified before the advent of European settlement in ways which favoured grazing by kangaroos and wallabies. This was partly the result of deliberate burning of the natural vegetation, as seen in the previous article for pasture improvement or hunting. Such firing had a direct effect on the habitats and the wildlife living within as will be discussed below. But, as well as the deliberate, there was the accidental element which had a bearing on the vegetation structure—as a result of the natives' activities or lightning strikes. The latter need not concern us except for giving allowance for this source of bushfires.

The accidental fires were caused by the aborigines' neglect of their campfires;

> I observed in every quarter clouds of smoke rising from the grass, which had been accidentally set on fire by the natives.
>
> (Dawson, p.209)

> We saw constant traces of the natives during our journey, and in one instance they could not have left their bivouac more than a few hours before we arrived ... as the fire they had left was still burning, and the points of their naked feet on the burnt ground near the fire were so fresh....
>
> (ibid., p.212)

Similarly, greater conflagrations may have been the result of the casual firing of the bushes for signalling purposes. Although the natives had fired the vegetation, there are insufficient records to establish the frequency. Neither can any conclusion be made about the intensity or extent of the fires. Extracts like the following give an impression only:

> I never saw anything like the state of the country with the fires - literally as black as charcoal for miles together.

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> I am confident we rode four or five miles at once without seeing 100 acres of grass.
> (Parry, p.61., Mon. 5 Dec., 1831; see also H.N.H. Vol.9, 1977, pp. 241-2.

Furthermore, since the natural environment was very extensive, with no alienation as has occurred since European settlement, the recovery of the habitats and wildlife was more assured. Over the many centuries of aboriginal man's occupation of Australia, the vegetation has adapted to the incidence of bushfires.

Observations by early settlers and travellers give the general view of the structure of the vegetation in the lower Hunter:

Vegetation:

> The alluvial banks of the Patterson's and Williams Rivers are heavily timbered, but the forest land behind is open, grassy, and everywhere suitable for pasture without cutting down a single tree...
> (Cunningham, p.77)

> The hills are everywhere Clothed with Wood, with constant verdure beneath it, unaccompanied by any Brush, or Underwood...
> (Ebsworth, p.51)

> The forest was everywhere open and grassy and free from brushwood; but generally thickly timbered with tall trees, both in the vallies and on the tops of the highest hills.
> (Dawson, p.15)

> In no instance did we see any hill or mountain that was not clothed with wood to its summit; and in all places the surface was covered with grass...excepting those patches of brush...
> (Dawson, pp.167-8)

> The country around them (the Paterson, Williams, Chichester rivers) is characterized as open forest land, affording excellent pasture, with small flats or strips of alluvial soil on the banks of the rivers...
> (Breton, p.126)

The original vegetation cover was predominantly eucalypts in varying density, from wet sclerophyll and patches of sub-tropical rainforest in river valleys, along the fertile banks, to dry sclerophyll which in the lower Hunter is the greatest proportion. Beneath the canopy, in the understorey, were the shrubs, grasses and herbs in variable proportions, according to the density of

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the trees—where thickest the understorey was sparsest. The most prevalent grasses were Kangaroo Grass (*Themeda australis*), Spear Grasses (*Stipa aristiglumis, Aristida* spp.) and Blady Grass (*Imperata cylindrica*).

Plants are affected by fire in an adverse or beneficial way. Depending on the severity of the fire most trees and shrubs with root-stocks survive and regenerate. But this is a process of time and conditions. Some plants will regenerate much quicker, while others will be stimulated to release fruit. Grass trees are stimulated to send up their flowering stems which the natives utilised in their material culture. Also the gum of this plant, that they made such use of, was more readily obtainable following a fire. The gum accumulates at the base of the grasstree stem.

Grasses recover quickly following a fire, and this is another reason for the natives' firing of the bush. The young tender shoots were favoured by the browsing marsupials which became part of the game of the natives. Through periodic firing the character of the vegetation structure would tend to favour the presence of grasses. Thus there was a relationship between the presence of grasses and the kangaroos.

Although in the lower Hunter the aborigines were fortunate to have access to prolific sources of marine food and showed a preference for it, kangaroos were hunted by them. Those less fortunate with limited access to the marine food sources depended more on the kangaroo, hence it would be more in their interest to promote an abundance of them. Since the kangaroo is a large animal, the amount of food contained in one was proportionately larger to any other animal and hence more food for less expenditure of effort. There is no doubt that there was an abundance of kangaroos in the lower Hunter.

> Kangaroos were very abundant from the numberless tracks we saw of them. (Threlkeld, p.86)

> Macquarie Lake was a place strongly recommended by ... [Rev. G.A. Middleton] as there the natives can procure an abundance of fish and Kangaroo... (Threlkeld, p.85)

> Marsupials were in abundance among the ridges and on the flat lands... (Scott, p.20)

> A low and fertile flat or meadow there skirted the river, and at the extremity of the flat the hills gradually arose with a gentle slope, covered with verdure, upon which an immense herd of kangaroos was feeding. (Dawson, p.139)

> The banks on both sides for a quarter mile consisted of some of the richest alluvial soil I ever saw: it was overgrown with grass in some places three feet high.... We had now

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> kangaroos on all sides of us. I never saw such numerous flocks before... (ibid., p.189)
>
> Immense quantities of kangaroos were feeding on the young grass...the natives...were half frantic at the sight of so much game. (ibid., pp.218-9)
>
> Flocks of kangaroos of every size were seen on the flats. (ibid, p.196)
>
> We saw an abundance of kangaroos.... (p.245

It appeared the natives relished the hunt for the kangaroo, probably because of a combination of f variation of diet and the thrill of the hunt. The predominant species was the Grey Kangaroo or Forester (*Macropus giganteus*). Other related marsupials were the Red-necked Wallaby (*M. rufogriseus*) and the Swamp Wallaby (*Wallabia bicolour*). These are still present in this region today but in much reduced numbers. The generous numbers of the kangaroos in pre-European settlement period suggests that there was available suitable habitat for them to inhabit with natural vegetation to sustain them. Such extensive areas with grasses gives support to the conclusion that the aborigines' practices and use of fire had a contribution in their promotion and maintenance. This is consolidated by the evidence available that previously open areas have become less so since the advent of European settlement and the relative decline in previous practices.

The practice by the aborigines of periodically firing the vegetation to secure food and to maintain favourable conditions for encouraging the growth of certain plants, has been termed 'fire-stick farming'. The aborigines' use of fire is thus seen as the exercise of some control on their environment for the purpose of the promotion of their food supplies. In so doing they have had an effect on the natural environment, not only on the plants but the wildlife as well.

It is more difficult to assess the effect on the latter. Fire affects wildlife in a direct and indirect way. It depends on the severity and extent. Larger animals will escape the direct effects; the arboreal ones may escape a low level fire burrowing animals would also be fortunate. Provided that the fire is not too extensive individuals may escape to untouched reserves. There would be more intensified pressures there where individuals would succumb but the species would most likely survive. In the immediate fire area, if extensive, those animals who survived the flames would undergo the rigours of intense competition and starvation. Certain species would benefit for a time, such as carnivores, which would benefit from the lack of shelter remaining for the survivors, as well as feeding on the victims of the fire. Apparently some animals rely on bushfires for their successful

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breeding, the notable ones being the New Holland Mouse (*Pseudomys novaehollandiae*) and Leadbeater's Possum (*Gymnobelideus leadbeateri*). As soon as the vegetation regenerates, the grasses tend to predominate. Then the herbivores benefit.

The aim, obviously, for the aborigines is not the extinction of species, so it would be in their interest not to promote devestating or too extensive fires, rather limited areas to which would come the kangaroos from the surrounding untouched bush.

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