

## COMMENT

### *Casuarina* in *Miscanthus* Savanna on Guam

In 1946 I observed *Casuarina* seedlings growing in some abundance in the *Miscanthus* cover on volcanic soils in southern Guam. They had, by 1946, reached a height of the 1 m or more of the tall grass. These seedlings had not been mentioned by E. H. Bryan or Otto Swezey in their talks on Guam vegetation that I heard in Hawaii in 1935 or 1936. So I asked my local Guamanian informants about this. They replied that they had not seen these seedlings before the war, that the Japanese must have planted them. My impression was that the Japanese had unintentionally discouraged the Guamanians from burning the grass. Some actually mentioned that they had hidden from the Japanese in the tall grass.

My conclusion, and recommendation to the American Military Government authorities at the time, was that if fires were prevented, these seedlings would grow up to form a *Casuarina* forest cover, similar to that observed at lower elevations on the west side of Saipan.

This prediction turned out to be correct, as areas that were protected from fire, inland from Apra Harbor, in 15 years supported a loose *Casuarina* forest, up to 8 or 10 m tall, with rather thin *Miscanthus* ground cover. None of these stands survived, as gradually, one after another, they were destroyed by fire.

The question has occurred to me, why no such seedlings were observed in pre-war *Miscanthus* savanna, since scattered mature *Casuarina* trees occurred in protected areas and the wind-blown seeds must have been available. This was shown by the immediate post-war abundance of seedlings. The earlier absence of saplings and young trees in these savannas was clearly the consequence of frequent burning. But why no seedlings?

The question also arose as to how *Casuarina*, which normally seems to require bare mineral soil or rock for establishment of its seedlings, could occur in such numbers in closed tall grass.

My suggestion, proposed here to stimulate investigation by resident observers in Guam, is that germination and rooting may normally take place on bare soil immediately after fires, and before they show above the grass they are wiped out by the next fire. The persistence and growth of the 1946 stands depended on the interruption of the frequent burning cycle by the Japanese occupation. It would now be interesting for a local observer to visit recently burned sites at intervals, to determine whether or not there is temporary appearance of *Casuarina* seedlings in the interval before the next fire eliminates them.

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