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Watching as our wild spaces burn

AIDAN FARRELL

AS DRY season gets underway, we have all noticed the first bush fires of the year. Our neighbourhoods become engulfed in smoke, and some people worry for their properties, but what are the ecological consequences of bush fires? How worried should we be for our wildlife and natural ecosystems?

Are bush fires 'natural'? In recent years ecologists have come to appreciate the important role that fire plays in maintaining the vitality of certain ecosystems. Over the history of the biosphere, fires have been a rare event for most habitats, although the frequency of bush fires is thought to have increased as early humans expanded into new areas. However, these infrequent 'natural' fires are now competing with the majority of bush fires that are started by modern humans with modern motives; humans are the leading cause of bush fires worldwide.

Historically, fires do not occur in ecosystems that are either too dry for lush vegetation to provide sufficient fuel, or too wet for fire to take hold. Thus, fire ac-

tivity is highest in tropical grasslands and savannas, and lowest in arid deserts and moist forests. Trinidad falls within an ecoregion where fire is not considered to be a significant part of ecosystem development, although fire may have played a role in the evolution of small areas of natural savanna (eg in the Aripo Savannas). Of the different forest stands in Trinidad, exotic pine and teak plantations are most at risk of bush fires, but any forest with an open canopy or near areas of grass or bamboo is vulnerable. Even in normally humid forest stands, a week of consecutive dry days provides enough fuel at ground level to allow bush fires to take hold. Therefore the risk is greatly increased when the dry season is severe, as it is predicted to be this year.

Major threat

Bush fires are a major threat to Trinidad's forests, as they are largely composed of fire-sensitive plant and animal species. As fires become more frequent, fire-sensitive species are replaced by fire-tolerant species over time, thus making the landscape more uniform and less diverse. Recurrent fires deplete the sup-



PHOTO BY M RUTHERFORD

ply of seedlings from long-lived species, resulting in more open, fire-prone forest stands.

In the most extreme case, forest cover is replaced by fire-climax grassland. Such grasslands burn frequently, preventing the return of trees and providing fuel for future fires that may spread to adjacent habitats; several examples of this can be seen on the

south-facing slopes of the Northern Range.

As for much of the tropics, all of Trinidad's natural habitats are classified as "fire degraded" due to the alteration of the natural fire regime. This disruption of the natural fire regime largely developed in the 1990s, with former plantations and State-owned forest giving way to unplanned,

unpoliced, and often illegal, settlements. By the end of the 1990s, the Forestry Division estimated that each year more than 6,000 acres of forest burn and some 100 acres are permanently lost. Once the tree cover is lost, the bare soil loses its ability to retain water and may become vulnerable to landslides.

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Slow moving animals, like this galap, are vulnerable to bush fires. PHOTO BY A FARRELL



Fire starters burn up land

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Human fire starters

What causes bush fires? The only significant cause of ignition in nature is lightning. In Trinidad, bush fires occur during the dry season and unless there has been an unseasonal lightning storm, all the fires you see were started by humans – usually on purpose. There is a perception that fires can be started by reflective objects, such as glass and aluminium cans, in reality this is extremely unlikely.

A smaller group of people believe that “fire-stones” can roll down hillsides sparking fire in their wake (In 1979 the Trinidad and Tobago Field Naturalists’ Club offered a reward of TT\$1,000 to any person who could demonstrate how bush fires are started by this method... the reward remains unclaimed). Where investigations have been able to identify the source of ignition, it is inevitably due to humans either deliberately setting fires or, more rarely, carelessly discarding burning coals or a cigarette.

For the most part, fire starters in Trinidad can be grouped into two categories:

Legitimate landowners burning their own land, with the optimistic expectation that it will spread no further than their imagination allows. It is illegal for anyone to start a fire during the dry season (from December 1 to June 30) without obtaining a permit from their local fire station.



A helicopter fighting fires in the Northern Range. PHOTO BY M RUTHERFORD

Trinidad is a tolerant nation, where neighbours share the “benefits” of social soca and communal canines without fear of a nuisance complaint. This laissez-faire attitude has its advantages, but tolerance of man-made fire seems a step too far. Perhaps this is part of a wider phenomenon, after all Ian Alleyne’s show is called *Crime Watch*, and watch is what most of us do! Watch as our neighbour sets light to a field of dry bamboo just as they did last year, the bamboo stand remains in place, while the fire is free to spread. Every year the fire fails to clear the bamboo, so why do land owners continue to burn it?

“Snakes” or “mosquito” are common answers, the cost of labour to clear the land is another. In many cases the landowner hopes that the land may be brought into production in the following wet season, if time al-

lows. Burning does release minerals from the plants onto the soil surface – but so does mulching and, unlike fire, mulching also adds organic matter to the soil, which is equally important for plant nutrition. Often the land is not brought into production in any case.

Poachers

Illegal farmers and poachers burning the bush for short-term gain. In the more remote areas of the country, fires are most likely set by illegal farmers or poachers. The ‘slash-and-burn’ farmers often use fire to clear an area of dense vegetation and then plant short-term crops in the ashes.

As mentioned before, there is an increase in soil fertility, but it is very short-lived and soon the farmer must move on to a new patch of vegetation to start again. Poachers may use small

fires to drive out wildlife; larger animals are shot as they escape the smoke and flames while burrowing animals are burnt alive or dug-out once the fire burns off the covering vegetation.

Such fires may easily get out of hand if the poacher does not bother to extinguish it.

These fires frequently devastate pristine areas of forest and can cause extensive fires when the conditions are suitable. It is difficult to understand the motivation for such fires, the crops or game meat can be consumed or sold, but the ability of the land to support such activity in future is compromised. Short-term thinking with lasting consequences.

Malicious acts

Perhaps a third category is also needed; in many parts of the world bush fires have been found to be the result of arson;

started as an act of revenge or a call for attention. Although the prevalence of this motivation has not been studied in Trinidad, some officials believe that ‘malicious acts’ are a leading cause of bush fires. Some people just like to start fires.

Prevention

The Forestry Division is largely responsible for the prevention of forest fires. Indeed, Trinidad’s Forestry Division is considered a regional leader in fire prevention methods and the Fire Service plays its role also.

Much effort is expended maintaining fire traces, staffing fire towers, and extinguishing fires, but fires are many and foresters are few.

The real solution lies with the general public — if you see a bush fire, report it; if you see your neighbour starting a bush fire, report your neighbour.

Forest fires can be reported to the Forestry Division, Forest Fire Hotline at 877-FIRE (877-3473) or the Fire Service at 990.

Today’s feature was written by Aidan Farrell. For more info on our natural environment, contact the Trinidad and Tobago Field Naturalists’ Club at admin@tfncc.org or visit our website at www.tfncc.org and Facebook or YouTube pages.

The club’s next monthly meeting will be held on March 10 at St Mary’s College, Port-of-Spain. A lecture on “Amphibians of the Aripo Savanna” will be delivered by Renoir Auguste.