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Tuesday, 10 September 2024

Tree crown fires observed at Groenpunt Prison, Deneysville, Free State. “Very dangerous” fire index value is as serious as the “Extremely dangerous” warning.

During the morning of Saturday, 7 September 2024, wardens woke up to a dry, hot and windy day over the extreme north-eastern areas of the Free State. Considering that we are exiting from a dry winter, characterised by above normal temperatures across the central and eastern provinces, the Fire Danger Index indicated conditions conducive to the rapid spread of wildfires (as depicted in Figure 2). The extreme dry weather conditions as well as the lack of rainfall around the Deneysville area resulted in widespread fires, with major damage to trees planted around the prison grounds (as indicated by Figure 1).



Figure 1: Images showing burning trees within the Groenpunt prison grounds. The persistence of dry and windy conditions exacerbated the situation. © Pictures taken by wardens at the prison

The wildland fires observed from the images above show characteristics of a basic type of woodland and forest fire, namely “crown fires”. This type of fire tends to burn the entire length of the tree to the top. Crown fires are potentially a very dangerous type of wildfire for firefighters to deal with, as the fire tends to burn one treetop, and then moves and spreads to successive treetops.

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Moreover, the persistence of very low humidity, strong winds and warm temperatures around the central interior prompted the South African Weather Service (SAWS) to issue a fire danger forecast of “very dangerous” (61-75) to “extremely dangerous” (76–100) conditions expected for Gauteng, the Free State, Northern Cape, North West, Limpopo as well as the extreme north-western areas of KwaZulu-Natal.

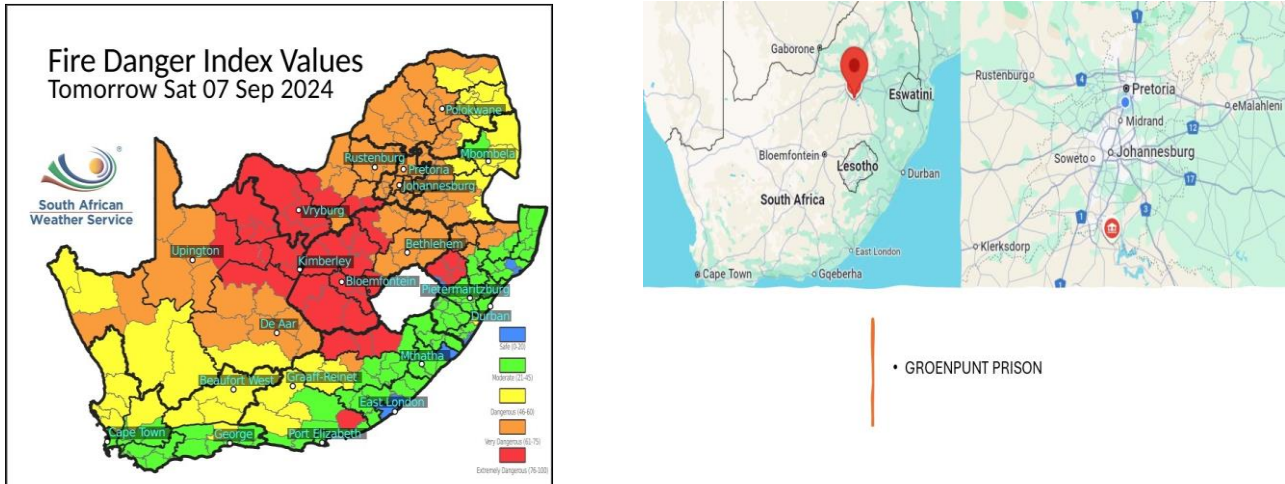


Figure 2: Image (left) indicating the forecast Fire Danger Index (FDI) values for 7 September 2024 and the location of Groenpunt prison (Free State) (right).

These warnings were issued by the SAWS in a timely manner. Moreover, the weather forecast also suggested strong winds for the central and surrounding areas of the Free State. Figure 3 shows the SAWS public forecast product for Saturday, 7 September 2024, indicating a strong north-westerly wind, which was expected to average 40 km/hr. The wind strength may well have played an important role in spreading the crown fires at the Groenpunt prison on the day in question.

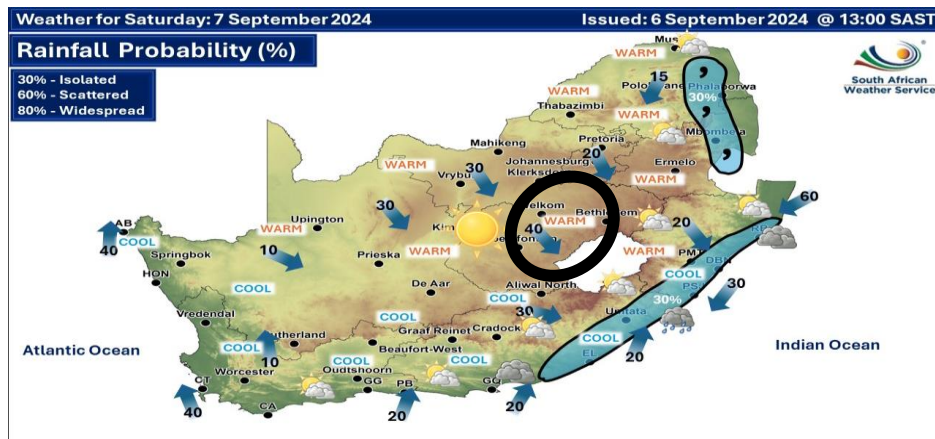


Figure 3: Image showing the SAWS weather forecast for the 7th of September, issued on 6 September 2024 @ 13h00 SAST. Source: The SAWS

Two more cases were reported over the weekend, with 19 cars having caught fire at the Bethlehem Airshow on 7 September (Figure 4), as well as a fire which destroyed 100 shacks in the Mahlangu informal settlement in Olievenhoutbosch, Centurion (Figure 5).



19 cars caught fire at the Bethlehem Airshow on September 7, 2024.
Image: Teboho Diphoko



File Image: Shack fire
Image Credits: GroundUp

Figure 4: Bethlehem Airshow, Free State

Figure 5: Olievenhoutbosch, Centurion

The fire danger index is a scale that indicates the risk of a possible fire and the rate at which it spreads on a specific day. It is **important** that the public takes note that the **“very dangerous”** index value warning is as significant as the **“extremely dangerous”** warning issued by the SAWS because a relatively innocent activity such as the burning of garden refuse can easily get out of control if the wind is strong, resulting in the fire to be harmful.

| Lowveld FDI Description | Colour | Category | Lowveld FDI Precaution |
|-------------------------|--------|----------|---|
| SAFE | BLUE | 0 - 20 | Low fire hazard. Controlled burn operations can normally be executed with a reasonable degree of safety |
| MODERATE | GREEN | 21 - 45 | Although controlled burning operations can be executed without crating a fire hazard, care must be taken when burning on exposed, dry slopes. Keep constant watch for unexpected wind speed and direction changes |
| DANGEROUS | YELLOW | 46 - 60 | Controlled burning not recommended when fire danger index exceeds 45. Aircraft should be called in at early stages of a fire. |
| VERY DANGEROUS | ORANGE | 61 - 75 | No controlled burning of any nature should take place. Careful note should be taken of any sign of smoke anywhere, especially on the upwind side of any plantation. Any fire should be attacked with maximum force at hand, including all aircraft at the time. |
| EXTREMELY DANGEROUS | RED | >75 | All personnel and equipment should be removed from the field. Fire teams, labour and equipment are to be placed on full stand-by. At first sign of smoke, every possible measure should be taken in order to bring the fire under control in the shortest possible time. all available aircraft are to be called for without delay. |

Figure 6: The various fire risk categories, according to the Lowveld Fire Danger Index (LFDI) in operational use at the SAWS. Note that FDI warnings are issued by the SAWS when the LFDI is RED. However, the ORANGE “Very Dangerous” category also carries significant risk. Source: The SAWS

The SAWS will continue to monitor any further developments relating to these weather conditions and will issue subsequent updates as required. Furthermore, the public is urged and encouraged to regularly follow weather forecasts on television and radio. Updated information in this regard will regularly be available at www.weathersa.co.za as well as via the SA Weather Service X account @SAWeatherServic

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