



Report of Monitoring, Early Warning and Assessment of Desert Locust

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Desert Locust Monitoring and Loss Assessment in Somalia and Yemen (May 2024)

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as the MODIS in the US and Sentinel-2 in Europe), and self-developed models and algorithms for Desert Locust monitoring and forecasting, the research team constructed the 'Vegetation pests and diseases monitoring and forecasting system', which could regularly release thematical maps and reports on Desert Locust.

This report focuses on the dynamic updates of desert locust monitoring and loss assessment in Somalia and Yemen. The remote sensing monitoring results showed that, in May 2024, desert locusts were mainly distributed in the northwestern region of Somalia and the western Red Sea coast and inland areas of Yemen, affecting vegetation over areas of 16.7 thousand hectares and 31.9 thousand hectares respectively. It is expected that over the next two months, increased rainfall is expected along the northern coast of Somalia near the Gulf of Aden, leading to better vegetation growth, which will be conducive to the survival and reproduction of desert locusts. The locusts in the northwest are expected to migrate to this area, causing a slight increase in the locust population. In the inland areas of western Yemen, intensified cyclone activity will result in abundant rainfall, facilitating the egg-laying and reproduction of desert locusts, leading to an increase in the locust population in that region. This period is the main planting and growing season for food crops in Somalia and Yemen. Continuous attention to the dynamics of the desert locust disaster remains necessary to prevent losses in agricultural and pasture production. The specific research results are as follows.

1. Desert Locust Monitoring and Loss Assessment in Somalia

In May 2024, increased rainfall in the northwestern region of Somalia favored the egg-laying and reproduction of desert locusts, leading to an increase in their numbers in the area. The monitoring results showed that in May, the total damaged vegetation area was 16.7 thousand hectares in Somalia, including 5.6 thousand hectares of grassland and 11.1 thousand hectares of shrub (Figure 1), accounting for 0.02% and 0.05% of the total area of the grassland and shrub, respectively. North-West experienced the most significant impact, with 8.7 thousand hectares of vegetation affected, followed by Togdheer, with 5.1 thousand hectares. Additionally, the affected areas of vegetation in Sool and Sanaag were 1.8 thousand hectares and 1.1 thousand hectares, respectively.

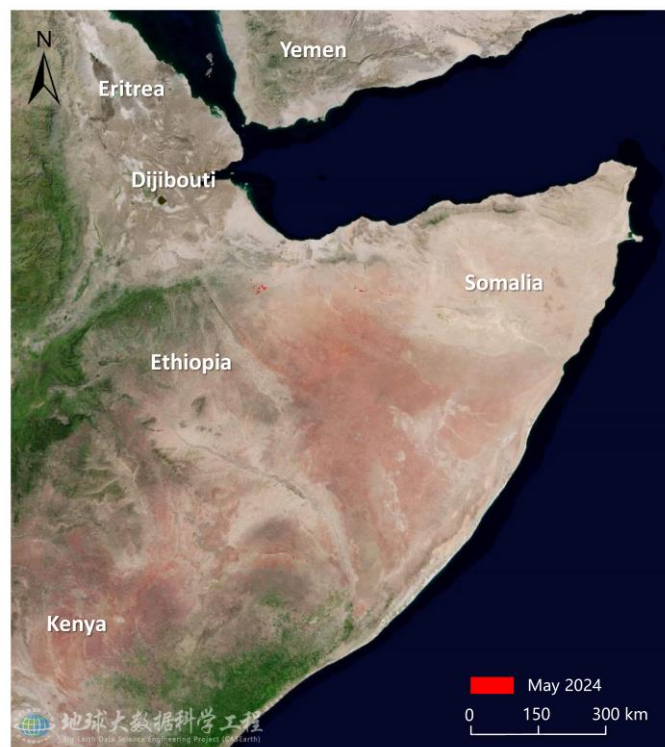


Fig.1 Monitoring of Desert Locust damage in Somalia (May 2024)

2. Desert Locust Monitoring and Loss Assessment in Yemen

In May 2024, desert locusts in Yemen were mainly distributed along the western Red Sea coast and inland areas. These regions experienced abundant rainfall and good vegetation growth, providing favorable conditions for locust egg-laying and reproduction. As a result, the number of desert locusts in Yemen increased slightly. The monitoring results showed that in May, the total damaged vegetation area was 31.9 thousand hectares in Yemen, including 6.1 thousand hectares of cropland, 11.2 thousand hectares of grassland, and 14.6 thousand hectares of shrub (Figure 2), accounting for 1.24%, 0.29%, and 0.27% of the total area of the cropland, grassland, and shrub, respectively. Compared with April 2024, the newly damaged vegetation area in Yemen was 2.3 thousand hectares, including 0.7 thousand hectares of cropland, 0.7 thousand hectares of grassland, and 0.9 thousand hectares of shrubs. San'ā province experienced the most extensive impact, with 15.1 thousand hectares

of vegetation affected, followed by Lahij province with 6.6 thousand hectares. Additionally, Dhamār, Al Hudaydah, Ta'izz, and Abyān provinces had affected vegetation areas of 4.1 thousand hectares, 3.6 thousand hectares, 1.4 thousand hectares, and 1.1 thousand hectares, respectively.

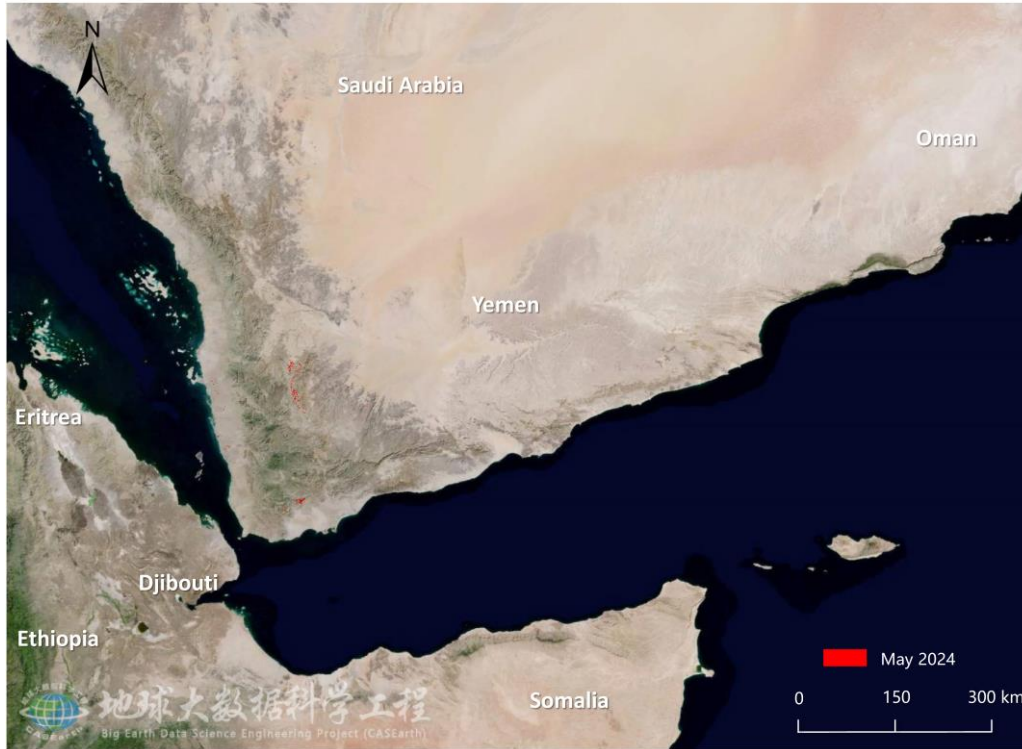


Fig.2 Monitoring of Desert Locust damage in Yemen (May 2024)

This study simultaneously utilized Sentinel-2 satellite remote sensing data to monitor disaster-stricken areas in western Yemen (Figure 3). Region 1 is located at the border between San'ā province and Dhamār province, 51.1 kilometers northwest of San'ā province. Region 2 is situated in the central part of Lahij province, 43.9 kilometers northwest of Ta'izz province. The total vegetation area in Region 1 is 52.83 thousand hectares, with an affected vegetation area of 8.43 thousand hectares. Among these, the affected areas of farmland and shrubs are 0.77 thousand hectares and 7.66 thousand hectares respectively, representing 7.37% and 18.09% of the total grassland and shrubland area in this region. Region 2 has a total vegetation area of 53.74 thousand hectares, with shrubs being the primarily affected type. The affected area covers 5.47 thousand hectares, accounting for 10.18% of the total shrubland area in this region.

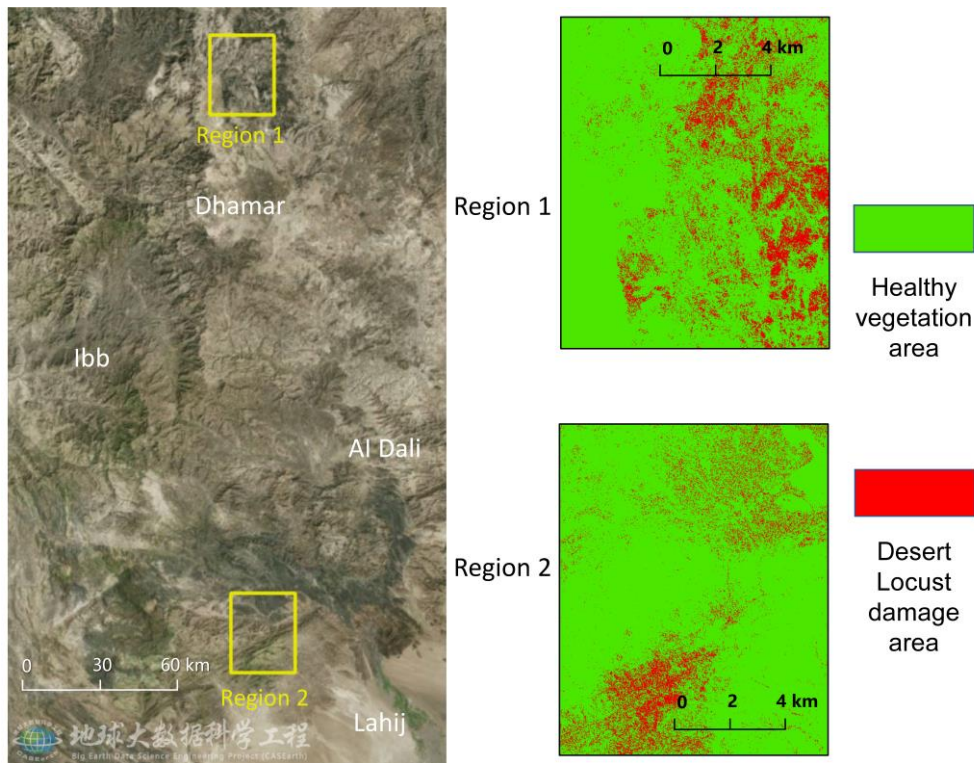


Fig.3 Monitoring of Key Desert Locust Infestation Areas in Yemen Based on Sentinel-2 Imagery (May 2024)

The comprehensive analysis shows that, in the next two months, increased rainfall is expected along the northern coast of Somalia near the Gulf of Aden, leading to better vegetation growth, which will be conducive to the survival and reproduction of desert locusts. The locusts in the northwest are expected to migrate to this area, causing a slight increase in the locust population. In the inland areas of western Yemen, intensified cyclone activity will result in abundant rainfall, facilitating the egg-laying and reproduction of desert locusts, leading to an increase in the locust population in that region. This period is the main planting and growing season for food crops in Somalia and Yemen. Continuous attention to the dynamics of the desert locust disaster remains necessary to prevent losses in agricultural and pasture production.

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