Report of Monitoring, Early Warning and Assessment of Desert Locust

[2025] NO.06 Total 69
June 2025

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Desert Locust Monitoring and Loss Assessment in Egypt, Ethiopia and Saudi Arabia (May 2025)

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as MODIS in the US, etc), 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.

The remote sensing monitoring results showed that, in May 2025, desert locusts were primarily distributed in the western regions and the central Nile Valley of Egypt, the northeastern regions of Ethiopia, and the northern and central inland areas of Saudi Arabia, affecting 16.3, 15.2, and 18.3 thousand hectares of vegetation, respectively. Over the next two months, rainfall is expected to remain low across most parts of Egypt. As a result, spring breeding will come to an end, locust populations will continue to decline and a gradual southward migration is anticipated. Localized greening in northeastern and eastern border areas of Ethiopia may create favorable breeding conditions, potentially attracting incoming adult swarms and triggering limited locust activity. However, overall locust levels are expected to remain low. In Saudi Arabia, increased rainfall in inland areas is likely to improve vegetation in regions such as Ha'il, leading to continued adult emergence and small-scale breeding. This period coincides with the main growing and harvest season for food crops in Egypt and Saudi Arabia, and the primary planting season for food crops in Ethiopia. Therefore, continuous monitoring of desert locust dynamics remains essential to prevent recurring damage to agricultural and pastoral production. The specific results are as follows:

■ 1. Desert Locust Monitoring and Loss Assessment in Egypt

In May 2025, most parts of Egypt experienced below-average rainfall and continued arid conditions, which were unfavorable for desert locust egg-laying and reproduction as spring breeding approached its end. As locusts continued to migrate southward within the country, their numbers further declined, with locusts primarily distributed in the western regions and the central Nile Valley. Monitoring results showed that in May, desert locusts affected 16.3 thousand hectares of vegetation in Egypt, including 3.8 thousand hectares of cropland, 7.8 thousand hectares of grassland, and 4.7 thousand hectares of shrubland (Figure 1), accounting for 0.10% of the country's total cropland, 0.57% of its grassland, and 0.59% of its shrubland areas. Aswan Governorate recorded the most extensive damage, with 7.1 thousand hectares of affected vegetation, followed by New Valley with 5.8 thousand hectares. Qina and Suhaj were also affected, with 1.9 and 1.5 thousand hectares of vegetation damage, respectively.

Fig.1 Monitoring of Desert Locust damage in Egypt (May 2025)

■ 2. Desert Locust Monitoring and Loss Assessment in Ethiopia

In May 2025, significant rainfall in northeastern and eastern border regions of Ethiopia led to localized greening that provided favorable conditions for desert locust egg-laying and reproduction. In addition, the influx of locusts from northwestern Somalia contributed to a slight increase in locust numbers in the area. Monitoring results showed that in May, desert locusts affected 15.2 thousand hectares of vegetation in Ethiopia, including 3.8 thousand hectares of cropland, 6.3 thousand hectares of grassland, and 5.1 thousand hectares of shrubland (Figure 2), accounting for 0.02% of the country's total cropland, 0.09‰ of its grassland, and 0.03% of its shrubland areas. The Somali Region recorded the most extensive

damage, with 7.8 thousand hectares of affected vegetation, followed by Afar with 5.7 thousand hectares. Amhara was also affected, with 1.7 thousand hectares of vegetation damage.

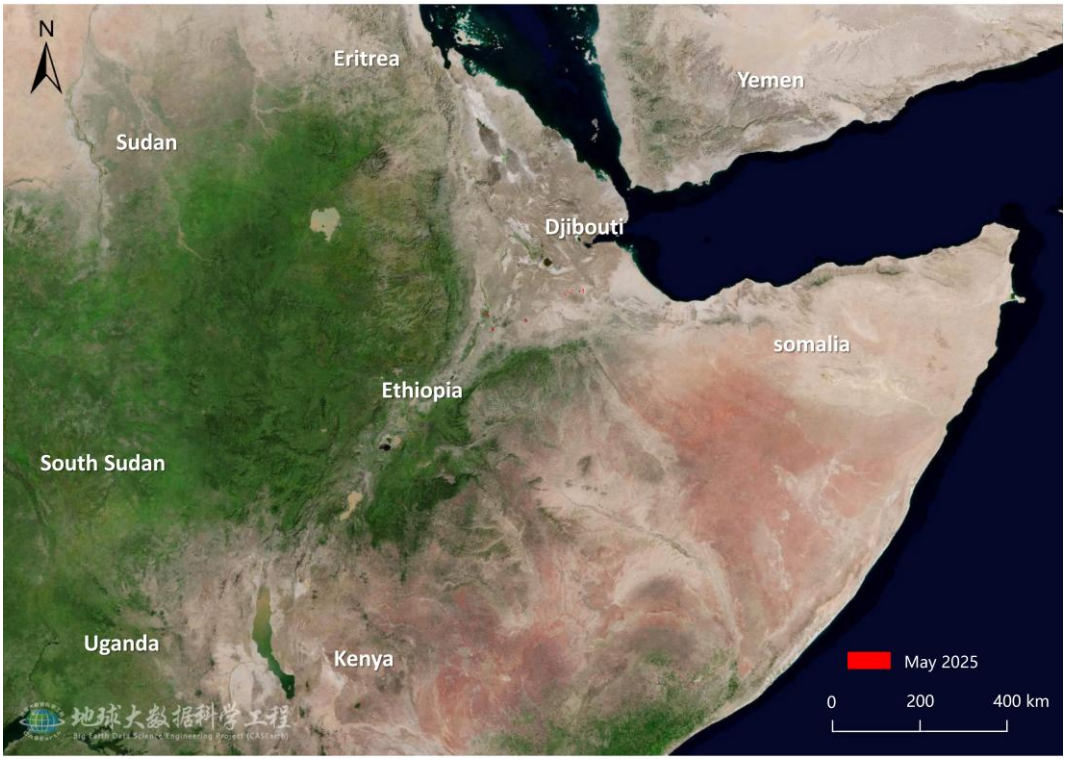

Fig.2 Monitoring of Desert Locust damage in Ethiopia (May 2025)

■ 3. Desert Locust Monitoring and Loss Assessment in Saudi Arabia

In May 2025, significant rainfall in northern and central inland areas of Saudi Arabia led to localized greening, creating favorable conditions for desert locust egg-laying and reproduction. As a result, locust numbers increased significantly in these regions. Monitoring results showed that in May, desert locusts affected 18.3 thousand hectares of vegetation in Saudi Arabia, including 5.0 thousand hectares of cropland, 6.9 thousand hectares of grassland, and 6.4 thousand hectares of shrubland (Figure 3), accounting for 2.28% of the country's total cropland, 0.35% of its grassland, and 0.16% of its shrubland areas. Ha'il recorded the most extensive damage, with 7.7 thousand hectares of affected vegetation, followed by Al Jawf with 3.2 thousand hectares. Ar Riyad, Tabuk, and Al Quassim were also affected, with 3.2, 2.6, and 1.6 thousand hectares of vegetation damage, respectively.

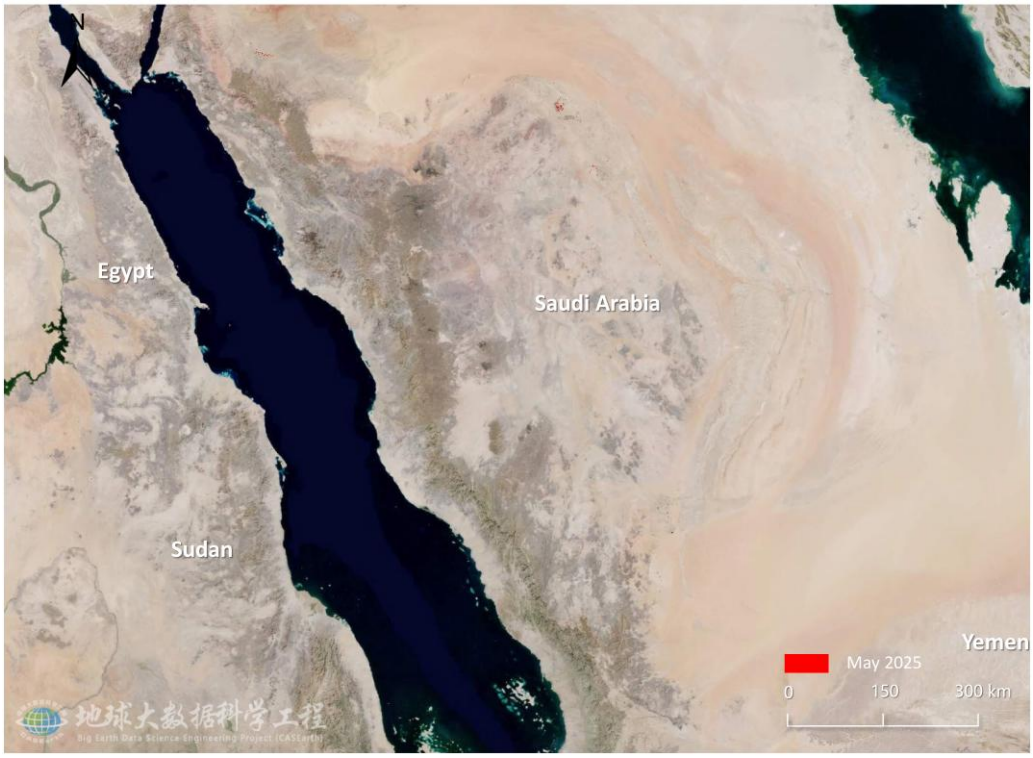

Fig.3 Monitoring of Desert Locust damage in Saudi Arabia (May 2025)

The comprehensive analysis suggests that, in the next two months, rainfall is expected to remain low across most parts of Egypt. As a result, the spring breeding will come to an end, the locust populations will continue to decline, and a gradual southward migration is anticipated. localized greening in northeastern and eastern border areas of Ethiopia may create favorable breeding conditions, potentially attracting incoming adult swarms and triggering limited locust activity. However, overall locust levels are expected to remain low. In Saudi Arabia, increased rainfall in inland areas is likely to improve vegetation in regions such as Ha'il, supporting continued adult emergence and small-scale breeding. Continuous monitoring of desert locust dynamics in Egypt, Ethiopia and Saudi Arabia is essential to prevent repeated losses in crop growth and agricultural production.

·NO. 20250306069

This report was released by Professor Wenjiang Huang's and Associate Professor Yingying Dong's research team in Aerospace Information Research Institute, Chinese Academy of Sciences.

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Funding Information

National Key Research and Development Program of China (2023YFB3906203 and 2021YFE0194800), National Natural Science Foundation of China (42071320, 42071423 and 32271986), Alliance of International Science Organizations (ANSO-CR-KP-2021-06), GEO Community Activities "Global Crop Pest and Disease Habitat Monitoring and Risk Forecasting", etc.

Citation

Report of Monitoring, Early Warning and Assessment of Desert Locust, (2025). *Desert Locust Monitoring and Loss Assessment in Egypt, Ethiopia and Saudi Arabia.* Beijing, China: RSCROP.

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