



Report of Monitoring and Assessment of Desert Locust in Africa and Asia

[2022] NO.2 Total 29
February 2022

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Desert Locust Monitoring and Loss Assessment in Somalia

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as GF series in China, MODIS and Landsat series in US, Sentinel series in EU), 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 update of desert locust monitoring and loss assessment in Somalia. The results showed that, in January 2022, the desert locusts in Somalia were mainly distributed in the northeast, followed by a small number of desert locusts in the northwest. The total damaged vegetation area was 91.7 thousand hectares, including 38.9 thousand hectares of newly damaged vegetation area. Compared with January 2021, the population of desert locust swarms was significantly reduced. In February 2022, with control operations and dry weather conditions, the locust population in Somalia is expected to decrease further. February 2022 is an important growing season for crops in Somalia. It is still necessary to continue to pay attention to the dynamics of the desert locust disaster in Somalia to prevent repeated losses to its agricultural and pasture production. The specific research results are as follows.

In early January 2022, the number of locusts in northeastern Somalia was significantly decreased due to the control operations. In mid-to-late January 2022, some of the desert locust swarms in the northeast spread southwestward into central Somalia. The monitoring results show that in January, desert locusts in Somalia harmed about 91.7 thousand hectares of vegetation area (Figure 1), which was a significant decrease in the population of desert locust swarms in Somalia compared to January 2021.

The research results show that, in January 2022, desert locusts in Somalia newly harmed

about a total of 38.9 thousand hectares of vegetation area, all of which were shrub, accounting for 0.09% of the total shrub area in Somalia. The affected areas were mainly located in the north of Somalia. Among them, Sanaag in the north had the largest affected area as 38.6 thousand hectares, followed by Bari in the northeast and Awdal in the northwest, which had the affected area as 0.2 and 0.1 thousand hectares respectively.

This study also used Sentinel-2 satellite remote sensing data to monitor the desert locust damage in the severely affected vegetation areas in northeastern Somalia (Figure 2). The data acquisition time is January 2022, and the spatial resolution is 10 m. The study area is in northeastern Somalia, 32.7 km from Karin in the east and 53.2 km from Carmo in the southeast. The vegetation types include cropland, grassland, and shrub, with a total area of 18.79 thousand hectares, including 0.05 thousand hectares of cropland, 0.23 thousand hectares of grassland, and 18.51 thousand hectares of the shrub. The monitoring results showed that the damaged area of vegetation in the study area was 8.04 thousand hectares, accounting for 42.8% of the total study area. Among them, shrub was the largest damage area with 7.95 thousand hectares, followed by grassland with 0.08 thousand hectares, and cropland was affected as 0.01 thousand hectares, accounting for 42.9%, 34.8%, and 20.0% of the total area of shrub, grassland, and cropland in the study area, respectively. The results of the study show that desert locusts still threaten the vegetation of Somalia, and continuous monitoring of the locust situation is needed to ensure Somalia's agricultural production and food security.

Comprehensive analysis shows that, in February 2022, as ground control continues, the desert locust swarms in Somalia will be significantly reduced compared to the same period last year. Forecasts show that locusts in northeastern Somalia will continue to lay eggs, reproduce, and mature, but further declines are expected due to dry weather conditions. February 2022 is an important growing season for crops in Somalia. It is still necessary to continue to pay attention to the dynamics of the desert locust disasters and carry out timely ground investigations and control actions to prevent the desert locusts from repeatedly causing damage to Somalia's agricultural production and food security.

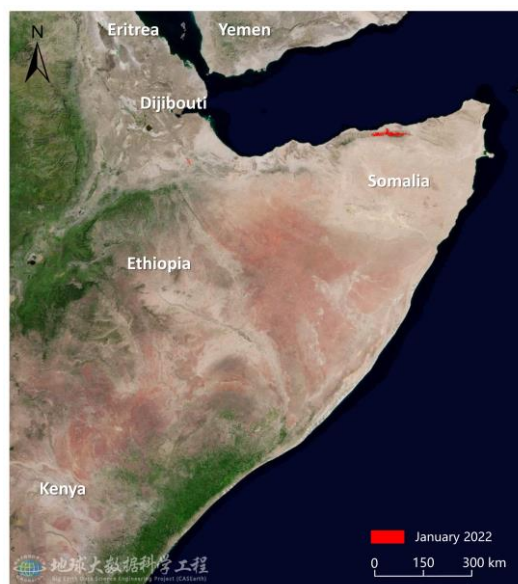


Figure 1 Monitoring of Desert Locust damage in Somalia (January 2022)

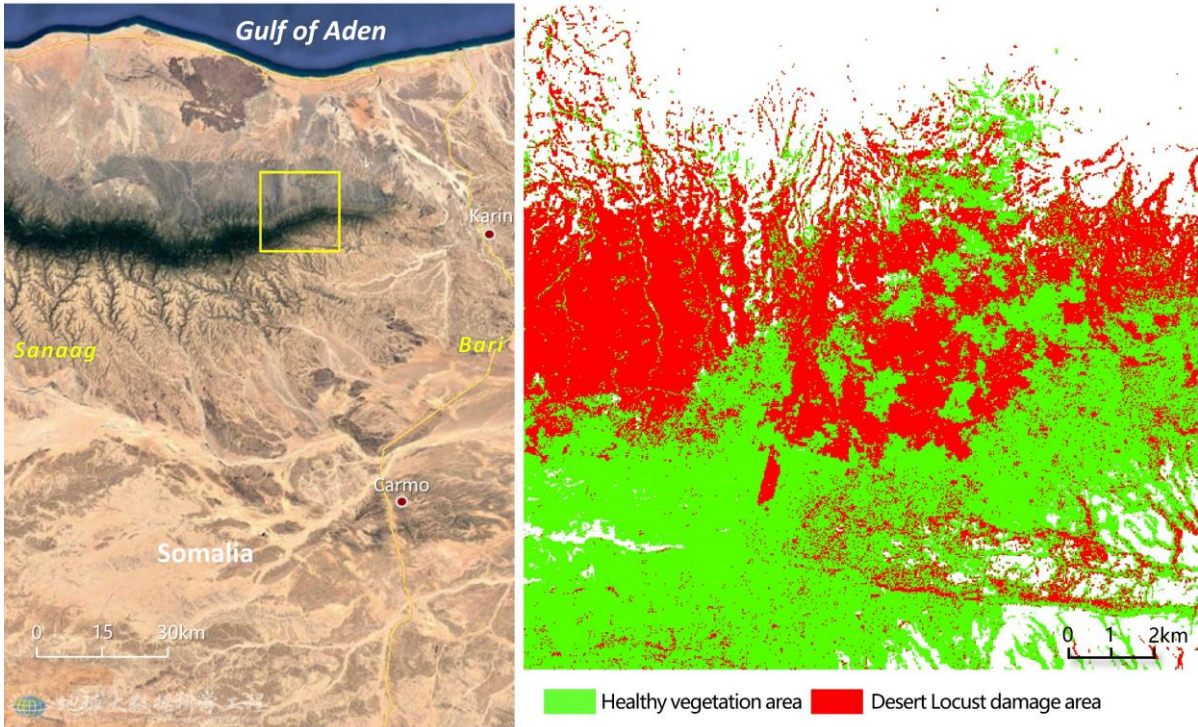


Figure 2 Monitoring of Desert Locust damage in the key damage area of Somalia based on Sentinel-2 images (January 2022)

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

Strategic Priority Research Program of the Chinese Academy of Sciences (XDA19080304), National Key R&D Program of China (2017YFE0122400 and 2021YFE0194800), National Natural Science Foundation of China (42071320 and 42071423), Alliance of International Science Organizations (ANSO-CR-KP-2021-06), Beijing Nova Program of Science and Technology (Z191100001119089), National special support program for high-level personnel recruitment (Wenjiang Huang).

Citation

Report of Monitoring and Assessment of Desert Locust in Africa and Asia, (2022). Desert Locust Monitoring and Loss Assessment in Somalia. Beijing, China: RSCROP. DOI: 10.12237/casearth.62426cc0819aec185b511788.

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