



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


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## Desert Locust Monitoring and Loss Assessment in Yemen

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 Yemen. The remote sensing monitoring result showed that, from January to early-mid April 2022, desert locusts in Yemen were mainly distributed along the Red Sea coast and the Gulf of Aden coast, and a small number of locusts were distributed in the interior of Yemen. The total damaged vegetation area was 101.1 thousand hectares, among which 56.8 thousand hectares vegetation were damaged in January (including 19.3 thousand hectares of cropland, 8.8 thousand hectares of grassland, and 28.7 thousand hectares of shrub); 49.2 thousand hectares vegetation were damaged in February, and compared with January, desert locust newly harmed about a total of 24.1 thousand hectares of vegetation area (including 7.1 thousand hectares of cropland, 4.1 thousand hectares of grassland, and 12.9 thousand hectares of shrub); 42.9 thousand hectares vegetation were damaged in March, and compared with February, desert locust newly harmed about a total of 20.2 thousand hectares of vegetation area (including 6.5 thousand hectares of cropland, 2.5 thousand hectares of grassland, and 11.2 thousand hectares of shrub). In May, locusts are expected to spread to the interior of Yemen along the Red Sea coast and the Gulf of Aden coast for egg laying and breeding, but their numbers will not increase significantly due to dry weather. The next two months are important planting season for crops in Yemen. It is still necessary to continue to pay attention to the dynamics of the desert locust disaster in Yemen to prevent repeated



losses to its agricultural and pasture production. The specific research results are as follows. In January 2022, locusts along the Red Sea coast and Gulf of Aden coast began their winter breeding, leading to an increase in locust population. The monitoring results show that in January, desert locust in Yemen harmed about a total of 56.8 thousand hectares of vegetation area, including 19.3 thousand hectares of cropland, 8.8 thousand hectares of grassland, and 28.7 thousand hectares of shrub (Figure 1). In February, the locust population further increased as the locusts laid eggs, reproduced and matured. The monitoring results show that in February, desert locust in Yemen harmed about a total of 49.2 thousand hectares of vegetation area, and compared with January, desert locust newly harmed about a total of 24.1 thousand hectares of vegetation area (including 7.1 thousand hectares of cropland, 4.1 thousand hectares of grassland, and 12.9 thousand hectares of shrub) (Figure 2). In March, the lack of precipitation and the dry climate led to a decrease in the number of locusts. The monitoring results show that in March, desert locust in Yemen harmed about a total of 42.9 thousand hectares of vegetation area, and compared with February, desert locust newly harmed about a total of 20.2 thousand hectares of vegetation area (including 6.5 thousand hectares of cropland, 2.5 thousand hectares of grassland, and 11.2 thousand hectares of shrub) (Figure 3).

The research results show that, from January to early-mid April 2022, desert locust in Yemen harmed about a total of 101.1 thousand hectares of vegetation area, including 32.9 thousand hectares of cropland, 15.4 thousand hectares of grassland, and 52.8 thousand hectares of shrub, accounting for 3.3%, 2.7%, and 1.0% of the total area of cropland, shrub, and grassland in Yemen, respectively. The affected areas are mainly located in the Red Sea coast in the west of Yemen, the Gulf of Aden coast in the south, and inland areas of Yemen. Among them, Al Hudaydah province on the Red Sea coast had the largest damaged area as 26.8 thousand hectares; followed by the Red Sea coast of Hajjah province and Al Mehwit province, had the damaged area as 23.2 and 22.3 thousand hectares, respectively; again for Abyan province on the Gulf of Aden coast, had the damaged area as 15.2 thousand hectares; the interior provinces of Amran, San'a', Lahij, Al Jawf, Shabwah, Aden had the damaged area as 5.3, 4.3, 1.9, 1.0, 0.7, 0.4 thousand hectares, respectively.

Comprehensive analysis shows that, from now to May 2022, locusts along the Red Sea coast and Gulf of Aden coast will spread to the inland areas of Yemen due to precipitation and keep laying eggs, breeding and maturing. However, locust reproduction in Yemen will be limited due to dry climatic conditions. The locust population is not expected to increase significantly in the next two months. The next two months are important planting season for crops in Yemen. 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 Yemen's agricultural production and food security.




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



**Figure 2** Monitoring of Desert Locust damage in Yemen (February 2022)



**Figure 3** Monitoring of Desert Locust damage in Yemen (March 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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