



Aerospace Information Research Institute, Chinese Academy of Sciences

Key laboratory of Digital Earth Science, Chinese Academy of Sciences

Big Earth Data Science Engineering Project (CASEarth)

Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory

Key Lab of Aviation Plant Protection, Ministry of Agriculture and Rural Affairs, P.R. China

National Engineering Research Center for Agro-Ecological Big Data Analysis & Application

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

Mid July 2021

Desert Locust Monitoring and Loss Assessment in Somalia

Overview

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 updates of desert locust monitoring and loss assessment in Somalia from April to June 2021. The results showed that from April to June 2021, desert locusts in Somalia were mainly distributed in the north. Compared with March, the newly damaged vegetation was 606.3 thousand hectares, including 0.7 thousand hectares of cropland, 31.4 thousand hectares of grassland and 574.2 thousand hectares of shrub. It is expected that from July to September, affected

Content

Overview	1
Desert Locust Monitoring and Loss Assessment in Somalia	1
Contact us	5

by the summer rainfall, the locusts in Somalia will continue to mature and multiply. Until then, the number of locusts in the territory will increase significantly, and the locusts are expected to spread to Ethiopia and Yemen. The next three months will be important growing and harvesting seasons in Somalia. It is still necessary to pay close attention to the dynamics of desert locusts in Somalia to prevent agricultural and pasture production losses. The research results are as follows.

Desert Locust Monitoring and Loss Assessment in Somalia

In early and mid-April 2021, affected by ground control operations, the number of locusts in Somalia has decreased significantly;

In late April 2021, affected by rainfall, locusts in northern Somalia continued to lay eggs and reproduce. The monitoring results showed that, in April, desert locusts in Somalia harmed about 414.6 thousand hectares of vegetation area, with an increase of 181.6 thousand hectares compared to March (including 0.1 thousand hectares of cropland, 8.6 thousand hectares of grassland, and 172.9 thousand hectares of shrub) (Figure 1). In early May 2021, due to the continuous impact of rainfall, the locusts in Somalia gradually matured and laid eggs; in mid-to-late May 2021, affected by ground control actions, the number of locusts decreased. The monitoring results showed that desert locusts in Somalia harmed about 561.3 thousand hectares in May, with an increase of 239.0 thousand hectares (including 0.5 thousand hectares of cropland, 16.7 thousand hectares of grassland and 221.8 thousand hectares of shrub) (Figure 2). In June, thanks to the progress of ground control operations, the number of Somali locusts decreased significantly compared to the same period last year. The monitoring results showed that desert locusts in Somalia harmed about 587.8 thousand hectares of vegetation area in June, with an increase of 185.7 thousand hectares (including 0.1 thousand hectares of cropland, 6.1 thousand hectares of grassland, and 179.5 thousand hectares of shrub) (Figure 3).

The research results show that, compared with March 2021, desert locusts in Somalia newly harmed about a total of 606.3 thousand hectares of vegetation area from April to June, including 0.7 thousand hectares of cropland, 31.4 thousand hectares of grassland, and

574.2 thousand hectares of shrub, accounting for 0.7%, 0.8% and 1.3% of the total cropland, grassland, and shrub in Somalia, respectively. The affected areas were mainly located in northern Somalia. The north and south of Togdheer was the worst affected area, with an affected area of 262.8 thousand hectares, followed by the south of Woqooyi Galbeed, with an affected area of 130.5 thousand hectares. The north of Sanaag had an affected area of 83.9 thousand hectares, the northern part of Sool had an affected area of 53.6 thousand hectares, and the south of Awdal had an affected area of 25.0 thousand hectares. The affected areas of Mudug, Bari, Shabeellaha Dhexe, Nugaal were relatively small, with affected areas of 18.4, 14.3, 12.2, and 0.56 thousand hectares, respectively.

Comprehensive analysis shows that, as ground control operations continue, the size and number of desert locust swarms in Somalia in July have significantly decreased compared to the same period of last year. Forecasts show that from July to September, affected by rainfall, locusts in northern Somalia will continue to mature, reproduce and lay eggs, which would lead to a further increase in the number of locusts in Somalia. The next three months will coincide with the critical growing and harvesting seasons for food crops in Somalia. We still need to pay close attention to the situation of desert locusts in Somalia. If not adequately controlled, locusts will bring a major threat to agricultural and pasture production. Ground surveys and control actions are required to safeguard agricultural and pasture production.

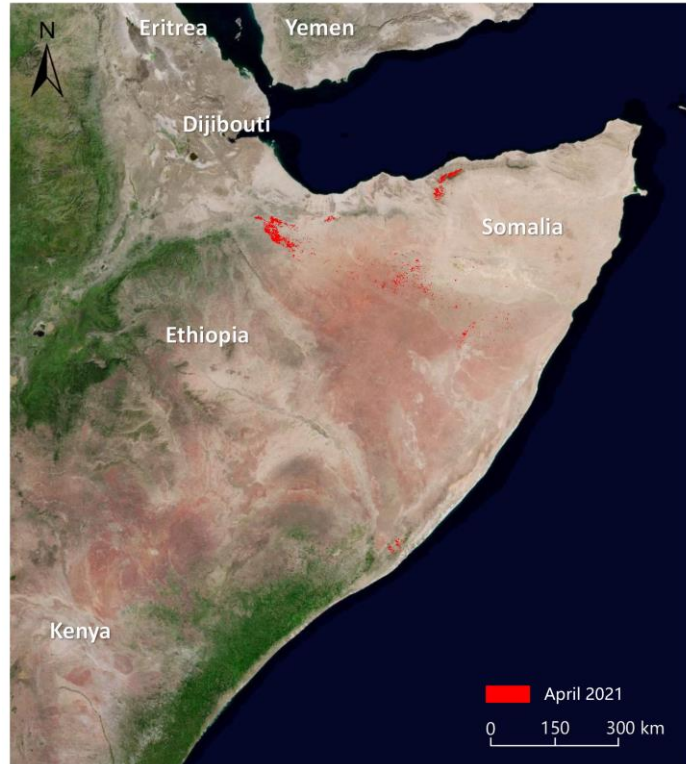


Figure 1 Monitoring of Desert Locust damage in Somalia (April 2021)

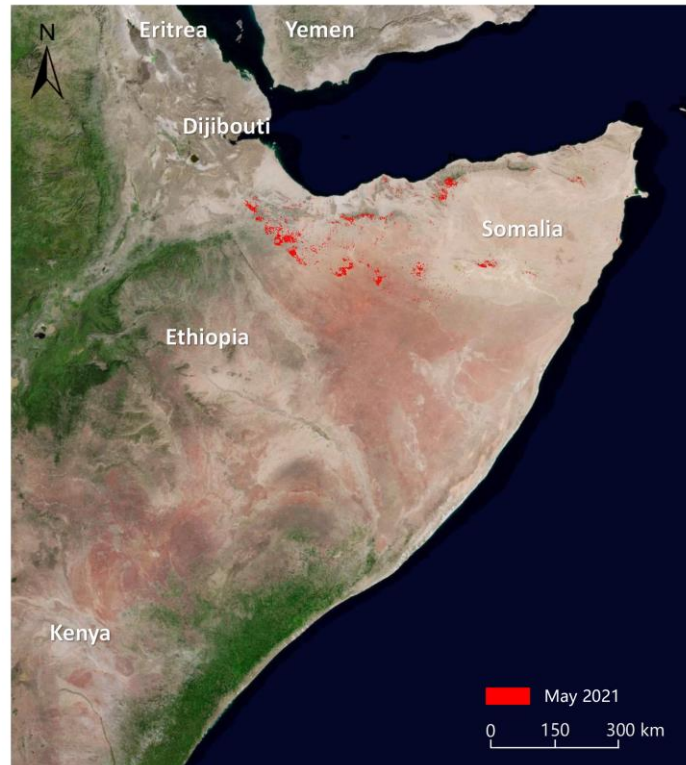


Figure 2 Monitoring of Desert Locust damage in Somalia (May 2021)

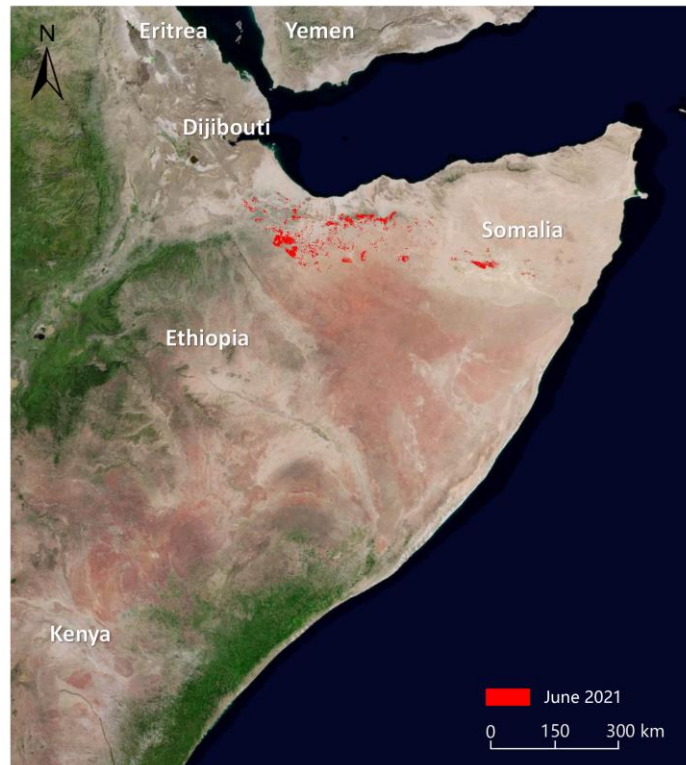


Figure 3 Monitoring of Desert Locust damage in Somalia (June 2021)

Contact us

Aerospace Information Research Institute
Chinese Academy of Sciences

No.9 Dengzhuang South Road, Haidian District,
Beijing 100094, P.R.China.

<http://www.rscrop.com/>
<http://www.rscropmap.com>



Chinese

English

The Vegetation Pests and Diseases Monitoring and
Forecasting system are available under:

<http://www.rscropmap.com/>

Legal Notice

Neither the Aerospace Information Research Institute nor any person action on behalf of the institute is responsible for the use which might be made of the publication.

Disclaimer

This report is a product of the Vegetation Remote Sensing & Pest and Disease Application Research Team of the Aerospace Information Research Institute, Chinese Academy of Sciences. The analyses and conclusions in the report do not represent the views of the Chinese Academy of Sciences or the Aerospace Information Research Institute. Users can legally quote the data in this report and indicate the source. However, any judgments, inferences or opinions made based on the report do not represent the views of the Team. The data published in this report are for reference only. The Team does not bear any legal responsibility arising from the use of the report. Official Chinese boundaries are used in the report.

Mission statements: As the science and knowledge service, the Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory is to support independent evidence for crop monitoring.

Supported by the Strategic Priority Research Program of the Chinese Academy of Sciences (XDA19080304), National Key R&D Program of China (2017YFE0122400, 2016YFB0501501), National Natural Science Foundation of China (61661136004, 41801338, 41801352, 41871339), Beijing Nova Program of Science and Technology (Z191100001119089),

National special support program for high-level personnel recruitment (Wenjiang Huang), and Youth Innovation Promotion Association CAS (2017085).

Citation

Report of Monitoring and Assessment of Desert Locust in Africa and Asia, (2021). Desert Locust Monitoring and Loss Assessment in Somalia. Beijing, China: RSCROP. DOI: 10.12237/casearth.60f9142c819aec40f9e902e8.

Contact us **Email:** rscrop@aircas.ac.cn

Corresponding author

Professor Wenjiang Huang

Aerospace Information Research Institute, Chinese Academy of Sciences

Email: huanwj@aircas.ac.cn

Tel: +86-10-82178178

FAX: +86-10-82178177

Main contributors

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.

Chinese contributors: Wenjiang Huang, Yingying Dong, Longlong Zhao, Huichun Ye, Mingquan Wu, Kun Wang, Xiaoping Du, Changyong Dou, Jun Yan, Jingcheng Zhang, Bei Cui, Linsheng Huang, Dailiang Peng, Huifang Wang, Hong Chang, Yun Geng, Chao Ruan, Huiqin Ma, Anting Guo, Linyi Liu, Naichen Xing, Yue Shi, Qiong Zheng, Yu Ren, Hansu Zhang, Tingguang Hu, Yanru Huang, Yu Jin, Chao Ding, Biyao Zhang, Zhongxiang Sun, Xiangmei Qin, Xueling Li, , Yingxin Xiao, Zhuoqing Hao, Kang Wu, Yong Liu, Bo Wu, Weiping Kong, Juhua Luo, Jinling Zhao, Dongyan Zhang, Xiaodong Yang, Yanhua Meng, Wenjie Fan, Yue Liu, Gang Sun, Bin Wu, Qing Zhang, Dacheng Wang, Wei Feng, Xianfeng Zhou, Qiaoyun Xie, Muyi Huang, Jing Jiang, Zhaochuan Wu, Cuicui Tang, Fang Xu, Jianli Li, Wenjing Liu, Junjing Lu, Furan Song, Qingsong Guan, Qinying Yang, Chuang Liu, Yunli Han, Yuzhen Zou, Lu Li.

Foreign contributors: Belinda Luke, Bethan Perkins, Bryony Taylor, Hongmei Li, Wenhua Chen, Pablo Gonzalez-Moreno, Sarah Thomas, Timothy Holmes, Stefano Pignatti, Giovanni Laneve, Raffaele Casa, Simone Pascucci, Martin Wooster, Jason Chapman.

Advisory Experts: Bing Zhang, Gensuo Jia, Jihua Wang, Qiming Qin, Puyun Yang, Guofei Fang, Shouquan Chai, Yuying Jiang, Jingquan Zhu, Dongmei Yan, Xiangtao Fan, Jianhui Li, Jie Liu, Yubin Lan, Jingfeng Huang, Anhong Guo, Zhanhong Ma, Yilin Zhou, Xiongbing Tu, Wenbing Wu, Feng Zhang, Zhiguo Wang, Lifang Wu, Dong Liang, Yanbo Huang, Chenghai Yang, Liangxiu Han, Ruiliang Pu, Hugh Mortimer, Jon Styles, Andy Shaw, Jadu Dash.