

JORDAN LAKE ONE WATER: BEYOND NUTRIENT MANAGEMENT

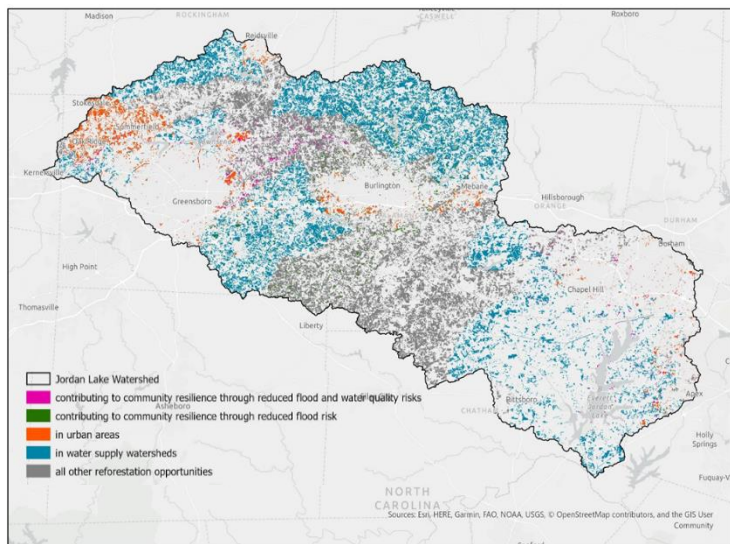
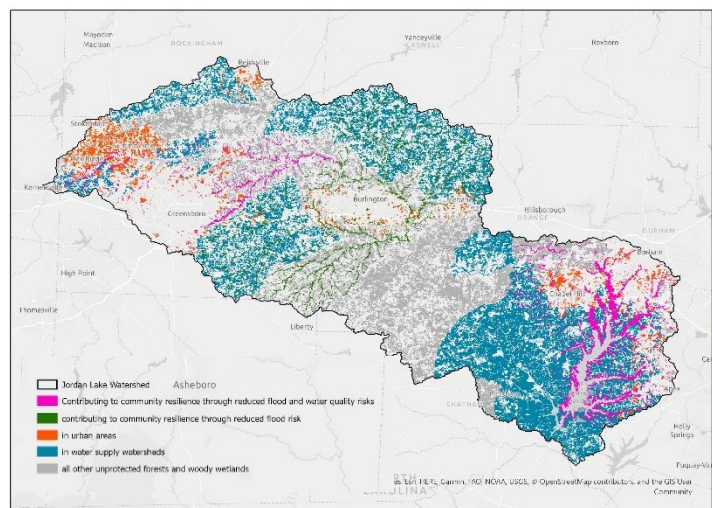
CONTEXT

The Jordan Lake watershed in central North Carolina is a key drinking water resource, but has long suffered from poor water quality due to excessive nutrient inputs. A new partnership, Jordan Lake One Water (JLOW), brings together governments, conservation groups, universities, water utilities, and other stakeholders to rethink watershed management in order to achieve social, economic, and environmental benefits.

The Nicholas Institute for Environmental Policy Solutions at Duke University mapped ecosystem services within the Jordan Lake Watershed to assess the magnitude and location of services that conservation actions can benefit.

COMMUNITY RESILIENCE BENEFITS

Existing forests in the watershed contribute to a variety of community resilience benefits. Forests and wetlands in the floodplain can slow water flows, reducing downstream flooding and the release of water pollutants. In urban areas, forests remove air pollutants and mitigate urban heat effects, which can benefit human health and reduce electricity use. Forests also help to keep drinking water supplies clean. In the Jordan Lake watershed, there are more than 300,000 acres of forest that contribute to at least one of these benefits and are not currently protected. Land conservation will help to ensure that these forests, and the benefits they provide, persist.



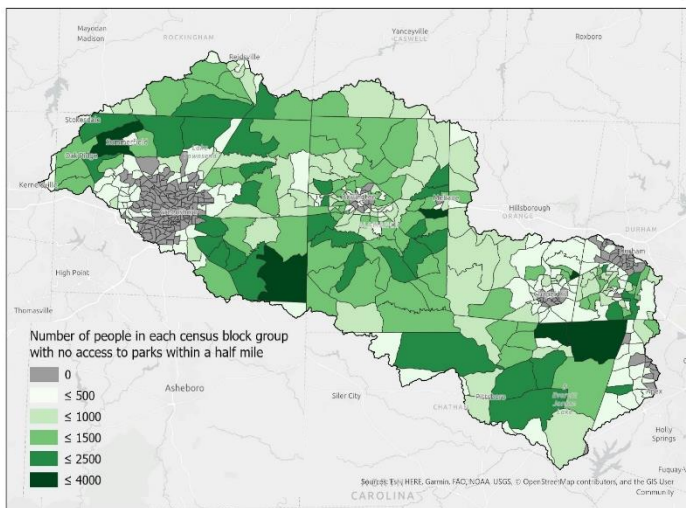
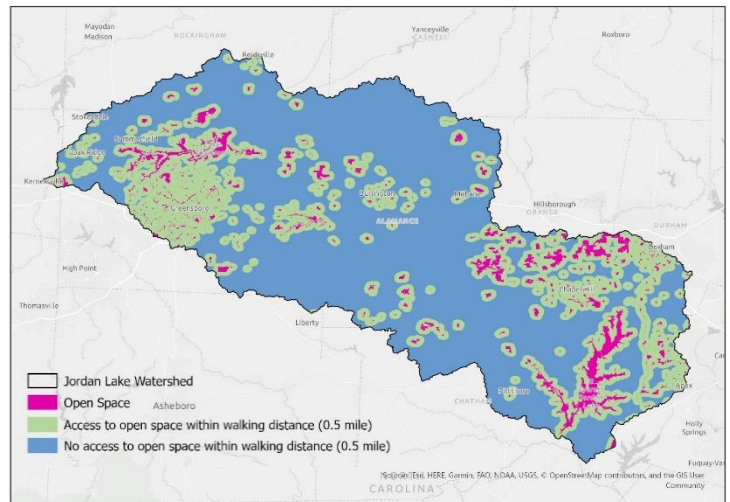
There are also more than 250,000 acres of land in the watershed that could support forest, but is not currently forested. Much of this land is being used for agriculture, so it is unlikely that it will be reforested without significant incentives. Reforested areas contribute to the same community resilience benefits as existing forests. In the Jordan Lake watershed, more than 130,000 acres of land with reforestation potential would contribute to at least one of these benefits.

CARBON STORAGE AND SEQUESTRATION

Preserving existing forests and creating new forests support carbon storage in the trees and soil. Keeping this carbon out of the atmosphere helps to mitigate climate change. The existing, unprotected forests in the Jordan Lake watershed store about 184 million metric tons of carbon dioxide equivalent, equal to a little more than a year of the state's total greenhouse gas emissions. The forests continue to store carbon at a rate of about 912 thousand metric tons per year – comparable to taking almost 200,000 cars off of the road. Similarly, if all of the reforestable land in the watershed were restored, those new forests would store about 432 thousand metric tons of carbon per year (equal to taking 93,000 cars off of the road).

RECREATIONAL ACCESS

Publicly accessible open space is directly related to human health and mental well-being, and people are most likely to frequently visit open space when it is close to where they live. Conservation and reforestation in the Jordan Lake watershed can increase access to open space for residents. Currently, there are 72,150 acres of publicly accessible open space in the watershed. However, there are still **large areas without open space within walking distance**.



Targeting conservation and restoration where new open space is most needed maximizes recreational benefits. There are six Census tracts in the watershed that have at least 2,500 residents without access to open space within walking distance – a total of almost 18,000 people across all six tracts. Land conservation and reforestation within these areas can be designed to provide open space access where none currently exists.

CONCLUSION

Jordan Lake watershed's forests provide many benefits beyond removing nutrients from water flowing into the lake. They help to mitigate flood impacts, cool the air, lock away carbon, and serve as a recreational resource for nearby residents. Conservation of existing forests and reforestation can preserve and enhance all of these services, as well as protecting drinking water quality. Focusing on a wider variety of benefits during watershed planning can help JLOW to build a broad coalition of stakeholders and achieve their social, environmental, and economic goals.