

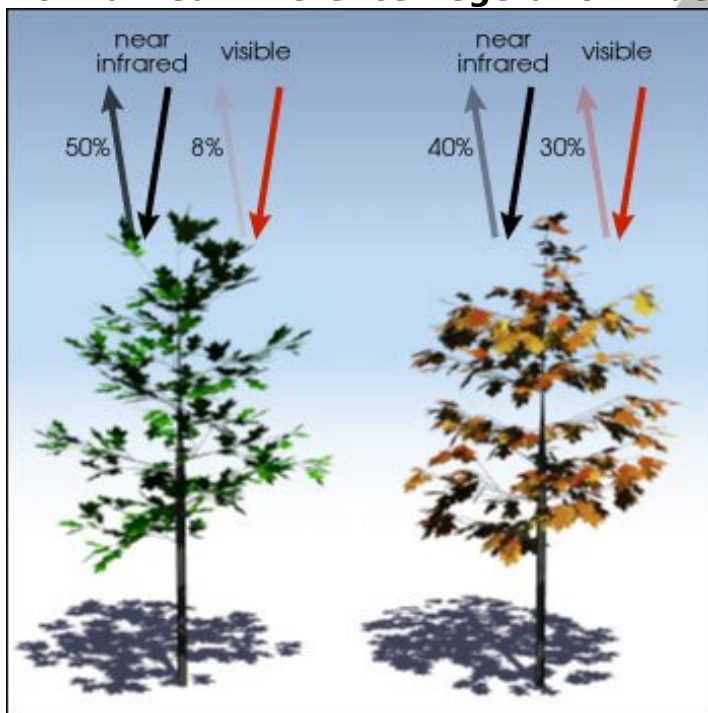


## Normalized Difference Vegetation Index

A recent study has found that the normalized difference vegetation index does not yield a reliable estimate of **food abundance** for **elephants** in tropical forests.

- Normalized Difference Vegetation Index (NDVI) estimates the **density of vegetation** and amount of **food abundance** available for herbivorous animals, for example, elephants.
- This index has a **negative correlation** with graminoids (grassy food - grasses, sedges, and rushes - preferentially consumed by elephants) in tropical forests.
  - Negative correlation implies grass density is low in areas with a high value of NDVI (which indicates healthier vegetation).

### Normalized Difference Vegetation Index //



$$\frac{(0.50 - 0.08)}{(0.50 + 0.08)} = 0.72$$

$$\frac{(0.4 - 0.30)}{(0.4 + 0.30)} = 0.14$$

- NDVI calculates the difference between the **red and near infrared components** of light reflected by objects (like satellite).
- Since healthy vegetation strongly **absorbs red** and **reflects near-infrared light**, this difference can indicate the presence of healthy vegetation and can be mapped into a **colour code** (green and red).
- **High NDVI value** (bright green) indicates healthier vegetation whereas **low value** (red) indicates less or no vegetation.
- Data obtained from satellites (like Sentinel-2, Landsat and SPOT) that produce red and near-

infrared images are used for estimating NDVI.

## Significance

- **Agriculture:** farmers use NDVI for **precision farming** and to **measure biomass**.
- **Forestry:** foresters use NDVI **to quantify forest supply** and **leaf area index**.
- **Environment:** NDVI is used to **inform the ecology of various species**, from elephants and red deer to mosquitoes and birds.
- **Drought:** NASA states that NDVI is a **good indicator of drought** when water limits vegetation growth, it has a lower relative NDVI and density of vegetation.

PDF Reference URL: <https://www.drishtias.com/printpdf/normalized-difference-vegetation-index>

