

Ground Truthing Satellite Imagery

With the introduction of the International Vetiver Grass Tracking System it is important that the input of vetiver site locations are accurately entered and that where satellite imagery is of good resolution that sites actually point to vetiver on the ground. If done properly it should then be possible to extrapolate and identify vetiver in the vicinity – particularly important where many small growers are involved in these adjacent areas.

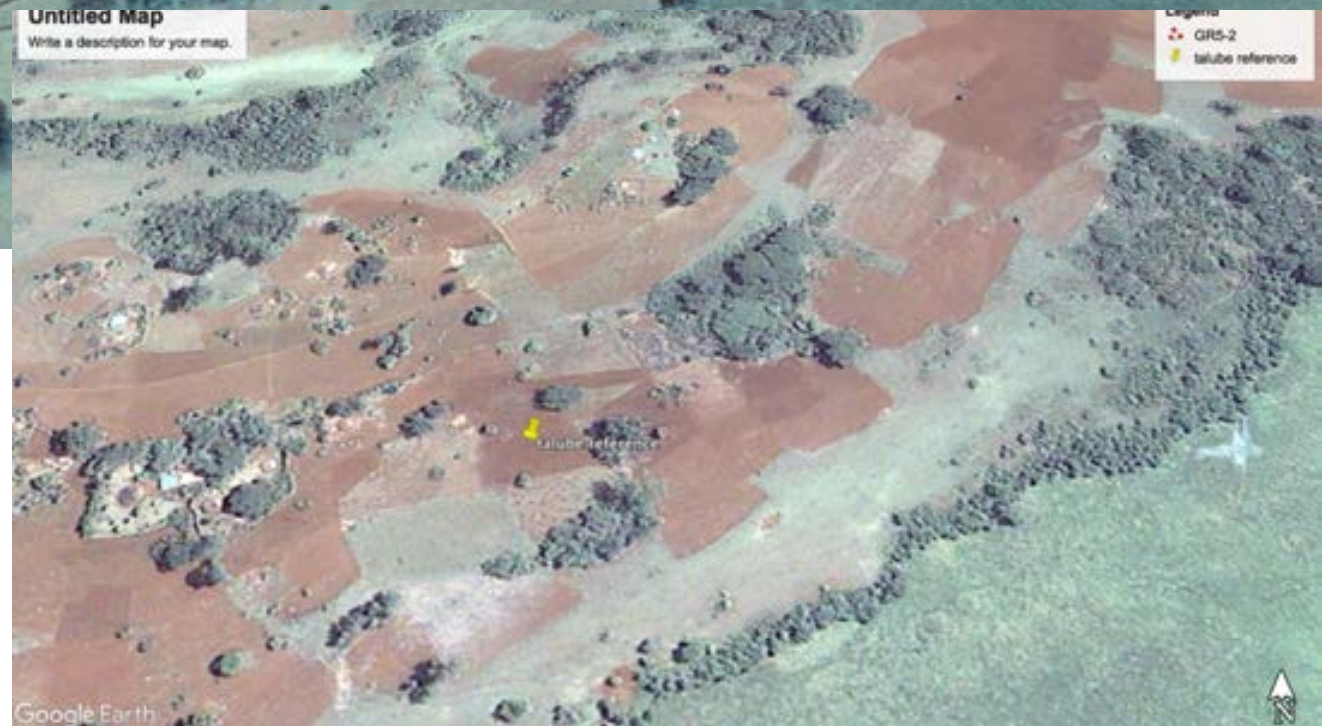
Ecuador – hill side vetiver planted for erosion control



Satellite imagery a few years after planting hedgerows visible.



Low level aerial photography of same site with vetiver hedgerows clearly shown



Ethiopia: Talube area
Smallholder farms
Right: 2002: no vetiver
hedgerows.
Above: 2015: with vetiver
hedgerows - ground
truthed and clearly visible

Talube, Metu, Ethiopia April 2002

Write a description for your map.

Legend

- Mettu Wetland rehabilitation
- talube reference



BEFORE VETIVER PLANTING

Google earth

Image © 2016 DigitalGlobe

900 ft



Talube, Metu, Ethioia, Dec 2016

Legend

- GR5-2
- talube reference

talube reference



Metu Wetland rehabilitation

AFTER VETIVER PLANTING – HEDGES AT LEAST 10 YEARS OLD

Google earth

Image © 2016 CNES / Astrium



800 ft



Talube, Mettu, Ethiopia: Vetiver hedgerows marked with red arrows. Ground truthed



Chikukwa, Zimbabwe; Vetiver hedgerows on small farms in dry season



Abdul Hussein



Gore Ethiopia: Ground truthed vetiver hedgerows on small farm. Vetiver Hedgerows clearly visible marked 'V'.



Santa Barbara, CA – USA
Highway cut - vetiver planted
in 2004 shown in 2006
imagery (above) and 2016
imagery at right



Fairhope Alabama, USA

Top left: shows a steep vegetated cliff (1997) before Hurricane Katrina.

Bottom right: the same cliff destroyed in 2004 by Hurricane Katrina. Note the green pin positions in both images





Bluff planting, Fairhope, AL

This water side cliff (preceding slide was totally destroyed by Hurricane Katrina in 2004, in 2008 it was planted to Vetiver. This image shows a well protected and stable slope that has survived some extreme weather events since 2004. Note the “dense” vetiver imagery signature



Medellin, Colombia.
Steep slope -
stabilization using
vetiver hedgerows.
Marked with green
pins. Hedges about 2
years old.



Medellin, Colombia – steep slope stabilization. Top satellite imagery (vetiver hedges at green pin). Bottom image” Google street view” of the same hedgerows

8/2014

Land Rehabilitation in Venezuela to protect vital spring water capture area. These hedgerows were planted in 2006 – imagery 2013 showing 8 year old vetiver. By 2018 most of the plantings had been over grown by native plants

vetiver 2

Vetiver pepsi

Vetiver3

Image © 2016 DigitalGlobe

Google earth

1970

Imagery Date: 6/1/2014 10°22'04.81" N 67°04'50.26" W elev 4206 ft eye alt 4732 ft



Honiara, Solomon Islands: Left image: arrows point to road side vetiver hedgerows. Right image is photo of typical road side vetiver hedge



08/08/2015



Vetiver hedgerows across major drainage channel (Storr's Creek) Laidley, Queensland, Australia. These hedges were subjected to major flooding and survived. Inset:Ground view





Watts Bridge – phytoremediation of effluent from airfield septic system using vetiver hedgerows. Top - satellite view. Right – ground view



Boonah Sewage Treatment plant - vetiver 2015

Write a description for your map.



17/11/2016



Boonah sewage treatment plant - using vetiver April 2015

Vetiver hedgerows at Boonah Sewage Plant, Queensland Australia. Inset ground view





Orlando Animal Kingdom, Orlando, Florida. Satellite imagery of Vetiver planted in random patches. Survives intense grazing by wildlife. Inset: ground photo of grazed vetiver clumps

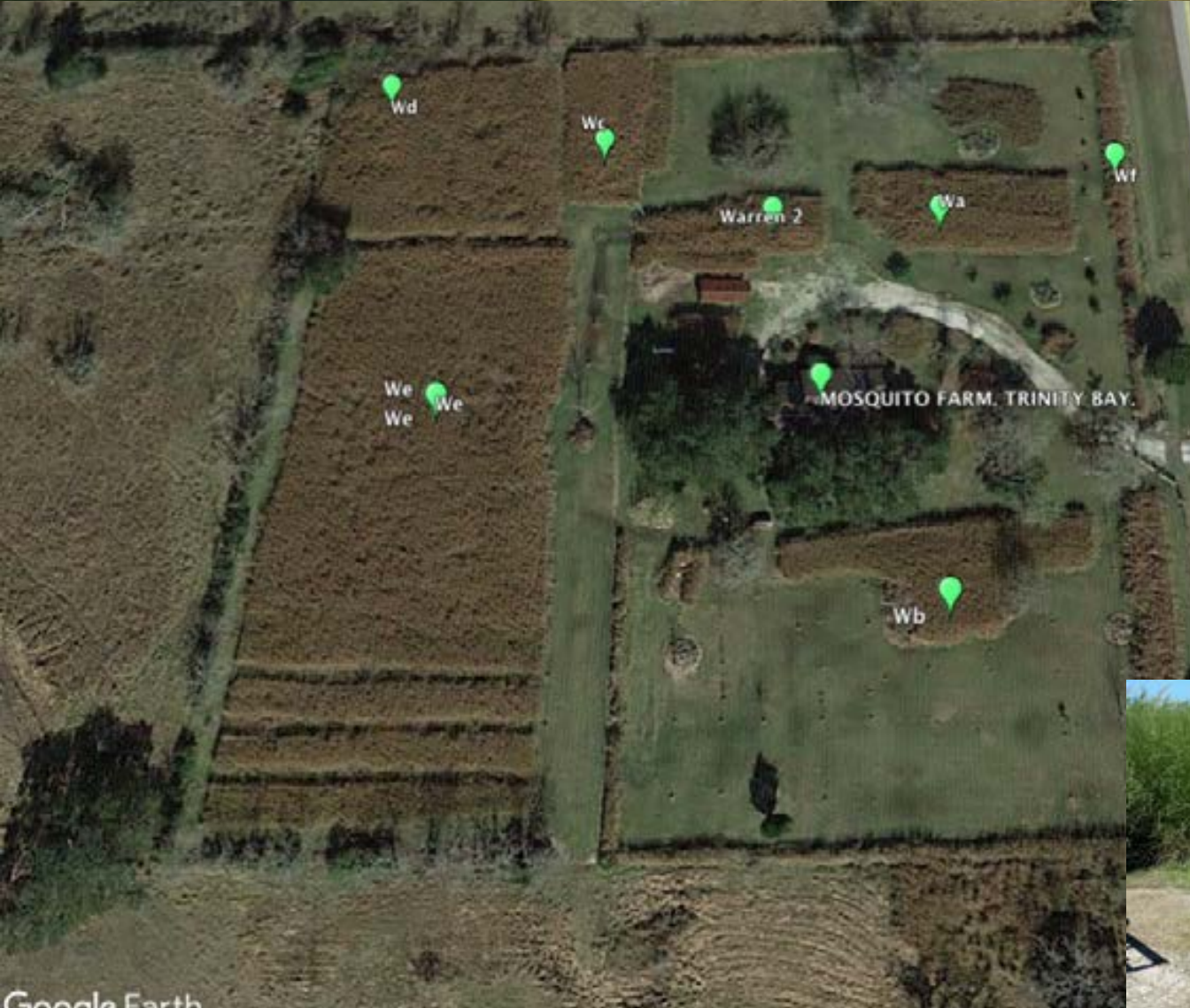


warren - fenceline
Write a description for your map.



Legend
United States
warren 2

Legend
2018 Trip
Feature 1



2018 - Vetiver boundary hedgerows and field planting of vetiver. Grown on brackish water water table. This vetiver has survived 7 ft of flood water as a result of a hurricane. Insets of vetiver on Mosquito farm. Insets show very good vetiver growth. (photo credit - Warren Sullivan)



Creek at intersection of RT 10 and Bluebonne Boulevard, Louisiana

Two year old vetiver planted on creek bank 2018

Legend

- 2018 Trip
- Feature 1

Creek bank erosion prevention with vetiver planted in area of green pin markers. Insets show before and after planting at the site. (photo credit Jack Bertel)



Brazil - Coastal beach protection

Vetiver is planted along beach (green pins). The straight hedgrows 100 feet back from the vetiver hedges are probably Elephant grass (purple pin)

Legend
[Green Pin] Gulf Pines, Boloxi



Vetiver (green pins) is planted along beach. The straight hedgrows 100 feet back from the vetiver hedges are probably Elephant grass (purple pin). Inset vetiver hedge along beach front.



Naples FI 2018

Vetiver pontoons (2) on road runoff collection pond

Legend
Gulf Pines, Boloxi

Florida pond

Vetiver pontoons

Two vetiver pontoons on pond in Florida





These images compare (left satellite view) vetiver planted on hill (block between two green pins) with right image a drone view – showing vetiver as bright green hedgerows



GULF Pines land fill 2018



Vetiver planted on top of landfill at Gulf Pines, Mississippi, where leachate drip irrigates the vetiver. Inset photo of vetiver planting.

