

Observatorio Vulcanológico y Sismológico de Costa Rica. OVSICORI
Fieldwork report, september 23, 2008.

Severe effects due to inverted volcanic gases towards the south and southeast flanks. Turrialba volcano.

On september 23rd, fieldwork confirmed severe impact on areas that had been only mildly affected during these recent 3 years of sustained degassing. At least 3 sectors show differential impact on vegetation and infrastructure, from the summit up to some 3km downhill along S and SE flanks (Fig.1).

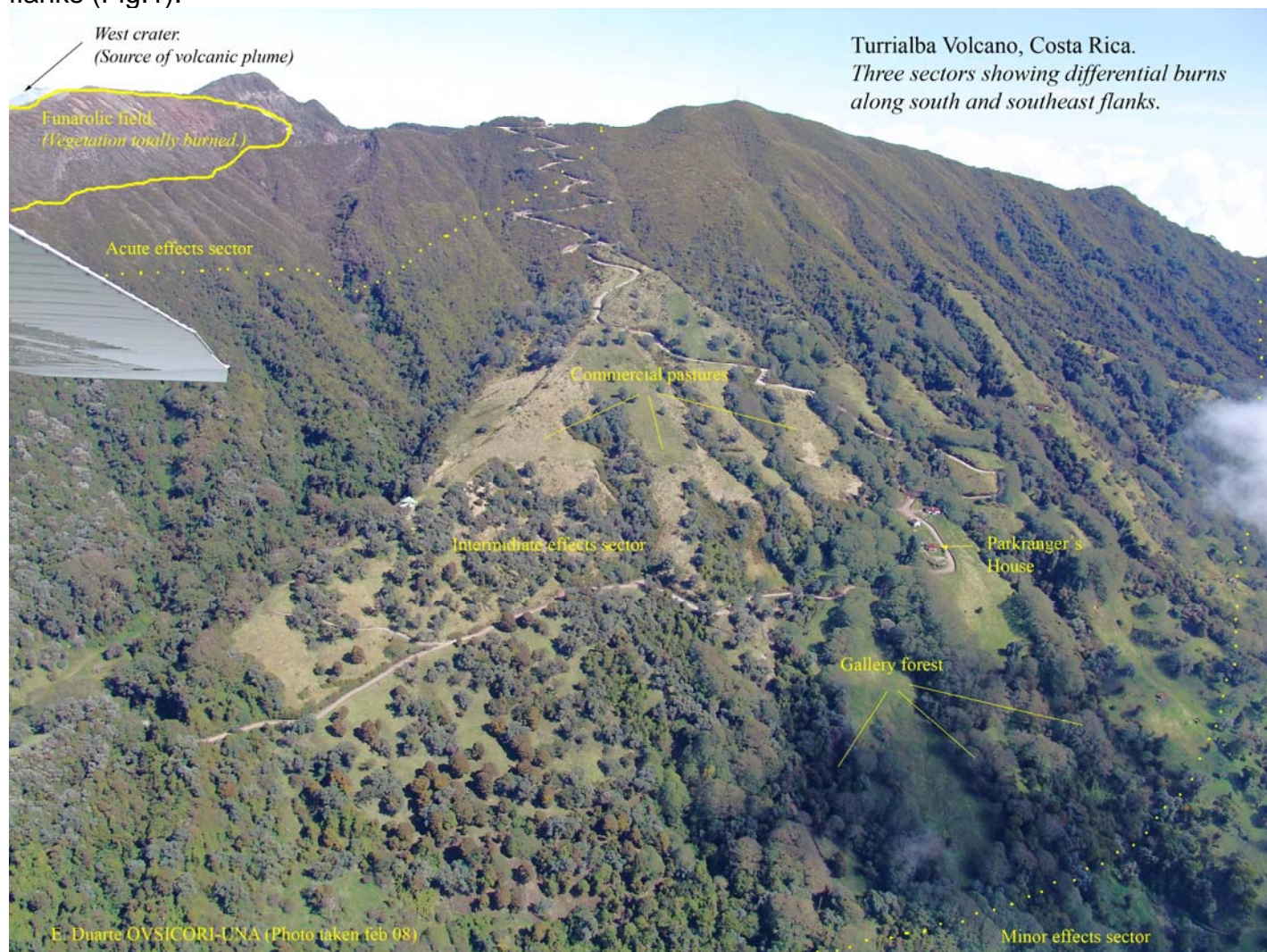


Fig. 1. General view of three main sector affected by volcanic plumes.

One upper sector includes the entire caldera and lower sectors to the east. Sectors to the S and SE near the summit have been severely burned during the months of august and September. This area goes from the summit 3300m down to some 2900 m.a.s.l. Weed, dwarf vegetation and trees are now completely burned due to the persistent presence of volcanic clouds (Fig.2).



Fig. 2. General view of caldera, towards the east, showing deep damage to vegetation.

In these areas, only some resistant species maintain some green. Along the external walls, south of the west crater, species have been burned to the soil. Moreover, due to that natural coverage, erosion appears in the form of extended radial crevices. Sustained burning is also explained by the presence of a fumarolic field that opened there since mid-2007. Further downhill, some 400m, burns include extended patches of a local bamboo/like, hardwood bushes and all sort of resistant weed (Fig.3).

Turrialba volcano, Costa Rica
*Severe burns along the
south flank.*



Fig. 3. Sector superior con quemaduras totales cerca del borde de la caldera. Lado sur.

An intermediate sector includes contours from 2900 to 2600asl. Significant forest patches have been partially seared by extreme acidification, particularly gallery forests densely occupied by birch. The yellowish appearance, seen in most of pastures, reminds similar burns occurred last year in the opposite side of the volcano, during the rainy season (Fig.4).

Turrialba volcano, Costa Rica
*Burns on commercial pasture
along the intermediate effects seccion.*



Fig. 4. Some 700m south of the crater rim pasture land shows an intense yellow color.

Beyond the contour 2600 mild burns on the Canopy and pasture are visible. Acute effects are noted along extended gallery forests indicating a selective impact from heavy gases that accommodate along canyons and depressions (Fig. 5).

Turrialba volcano, Costa Rica
*Birch and other tree species
severely defoliated..*



Fig. 5. About 1km S of the crater, near the parkrangers house, gallery forests show severe burns.

Some words are needed to state that exposure to gases on the summit areas, can be harmful to parkrangers, visitors and occasional technicians, due to a accumulative effect in the human system. Use of full/face masks and other proper protecting equipment is highly recommended. Visitation rules should be maintain specially in case of inverted winds blowing in this mentioned direction (Fig. 5).



Fig. 6. Sweeping effect of volcanic plume moving along S and SE flanks.

Meanwhile, for the intermediate sector an active search of specialists is suggested, in order to implement contingency measures for those pasture patches that are still commercially exploited. Similar recommendations are given for effects on infrastructure, human and animal health.

Acute impact on sectors opposed to those now affected, pushed settlers out of their farms voluntarily last year. A similar condition may occur if winds prevail along the impacted flanks. Measures to be taken are limited due to the natural conditions of the polluting source, quantity of gases and chemical characteristics. Nuisance to health will continue as long as the toxic plume remains sweeping the now affected flanks. Finally it is also needed to emphasize that dilution of acids does not apply even under current rainy conditions. On the contrary haze, cloudiness and high humidity accelerates due to rapid conversion of sulphur species into acids of rapid and systemic action.

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