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EXTERMINATORS • FUMIGATORS • SANITATION CONSULTANTS

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Dear Dr. Galston,

I have just completed your article entitled, "The Ungreening of South Vietnam" in the June-July issue of Natural History. The statistics of such a vast spraying program are indeed depressing. Everyone, however, seems to attack this problem from the standpoint of the effects, both short and long-term, on the environment and the populace. In fact, most miss the two most salient points when talking on this particular subject: 1. These materials should not be termed "defoliants" and 2. The objectives for which the military establishment used these materials were never realized.

As a Captain of a small, preventive medicine unit stationed in the "boondocks" of III Corp and Cambodia during 1970-71, I had an unusual vantage point for seeing the ecological and military destruction of huge areas of South Vietnam. My men and I were in the air over these sections and through them on foot routinely. You state on page 12, "But in Vietnam this method is impossible since much of the sprayed territory remains under the control of either the Provisional Revolutionary Government or forces allied with it, which would not look with favor on a visit sponsored by the Defense Department of the United States." Ha! These areas were "my home away from home" for a year. Every morning at 5 AM until 10 at night, we flew aerial spray missions for malarious mosquito control over every fire support base, landing zone, cache site and night defensive position of the 1st Cavalry Division. A map I have shows over 200 different spray targets from April 1970 to the following April.

PIONEERS
IN
PEST CONTROL

From such a vantage point, I have accumulated some excellent slides of the "before and after" of the herbicide spraying program. Vast acreages of dead 80-140 foot trees. Some areas where everything, including the ferns and bamboo, are dead. Beautiful epiphytes now exposed to view from the air because the supporting trees have died. Dead rubber trees and their attendant epiphytes. Ad infinitum.

The military was forced to stop this program of defoliation because of public outcry. Or was it? The only registered defoliants I know of on today's chemical market are products such as "Def" and "Folex". These two products, along with "De-Fol-Ate" and "Shed-A-Leaf L" which are sometimes used as defoliants, are registered for use on cotton. These products cause the leaves to drop, thus making harvesting easier.

2,4-D, 2,4,5-T, arsenic acid, cacodylic acid and the sodium chlorate-borate mixtures are usually classified as herbicides, not defoliants. Therefore, the materials used in South Vietnam are herbicides, not true defoliants. Agent Orange, which is a mixture of 2,4-D and 2,4,5-T, kills most broad-leaved plants outright, especially at the rates applied in this program. This material was used undiluted, "straight from the barrel". When sprayed on the leaves, it is translocated to the roots and kills the entire plant. Cacodylic acid is listed in the Farm Chemicals Handbook as a silvicide (tree killer for forestry use). Picloram, also known as Tordon, is a systemic herbicide used for herbaceous weeds and woody plants.

To emphasize my number one point, when the public hears of these materials being called defoliants, the layman does not conjure up a mental picture of vast areas of dead trees. He simply assumes the defoliation to be a temporary thing. That today the trees are luxuriant once again. What an injustice to the triple-canopy climax of South Vietnam. Audiences to whom I have spoken have been shocked at my first-hand slides. They just do not realize what eleven years of massive "defoliant" spraying has done to this fragile ecosystem.

And this brings me to my second point, the military stopped this lunacy not because of public outcry, but because it simply did not accomplish the objective, putting it in military jargon. Admittedly, public outcry was the catalyst, but it was really

Nature's ability to bounce back that foiled these massive attempts to render the jungle useless.

As you state on the first page of your article, "The experts also sought to expose to aerial attack forces infiltrating from the North and to kill selected crops in certain outlying areas, thus, presumably depriving guerrilla units of food." The latter portion of this statement was really a minor part of the program, using picloram and the arsenic compounds. The primary part of the program of "defoliation" was aimed at vast acreages and was that portion that failed miserably from a purely technical and tactical point of view.

Speaking as an amateur plant ecologist, what happens when the uppermost canopy is killed? The gross manifestation is the sudden loss of protective shade for the jungle understory. Some of the understory is also killed the first time the area is sprayed. Subsequent sprayings will kill all plant life. Fortunately these materials are mostly water soluble and will eventually leach down past the root zone. And then the infinitesimally slow succession of plants attempts to bring this portion of the jungle back to its original triple-canopy climax forest.

Pioneer plant species move into the denuded areas once the heavy rains have rendered the soil non-toxic to them. Vines, gourds, ground plants and shrubs, ferns of all types, and eventually bamboo make these restored areas "impenetrable". Ask any foot soldier (grunt) where he would rather go on patrol, a defoliated or non-defoliated area, and he will invariably acclaim the ease of operating in a non-defoliated area. This triple canopy paradise is in continual twilight and is relatively free of dense vegetation. The "defoliated area" on the other hand, is one with dense understory and bamboo stalks sixty feet tall. The enemy takes full advantage of this situation by hacking out trails through this mass, pulling the long bamboo stalks over the trail teepee fashion, and thus making aerial observation impossible. Almost all the weapons cache sites our forces discovered during my tour of duty had "highways" leading to them with bamboo "roofs" as I have described.

Dr. Arthur W. Galston
Page 4

Had all the investigators been able to see the situation the way I saw it, perhaps they would have attacked the military directly for continuing a program that simply did not work. Surely the ecological ramifications and damage must not be underestimated, but I believe the lay community could more easily identify with the two points I have emphasized here. To speak of an expensive program that is both ecologically damaging AND does not accomplish the objectives set forth, is factual, concrete and convincing. To speak vaguely of ecological damage to the jungle, unfortunately does not gain wide popular support. The same could be said of my own involvement in the mosquito spraying program, but that is yet another story for another time.

I went to the conflict in South Vietnam primarily to answer basic questions I had about our involvement there. I came away with a multitude of evidence so damaging to the United States' cause and so personally shocking that I must fight to restrain my bitter distaste for our involvement and cruelty. I pray that we now install and utilize maximum safeguards against future abuses both at home and abroad.

I personally thank you for taking the time to publish this timely and informative article. Perhaps we could someday meet to compare pertinent information. Unfortunately the tragedy of Vietnam does not stop with the herbicide controversy. We will feel its effects for years. The Vietnamese may never be able to repair the damage.

Respectfully yours,

Thomas A. Parker

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cc: Alan Ternes
Editor
Natural History