

March 28, 1985

Peter Arnold, Principal Forestry Advisor

RDO-85-

Isabela Fire, Second Trip from March 15 to 27, 1985

To the Files

**PURPOSE:**

To accompany Mr. Miguel López, USFS and first shipment of fire fighting tools and equipment, to assess fire, to provide liaison with USAID/Quito, to meet Mr. Pat Velasco, USFS and second shipment, and to act as radio liaison between fire site and Quito.

**PARTICIPANTS:**

Peter Arnold, Principal Forestry Advisor

Miguel López, Fire Officer, USFS - Region 5

Pat Velasco, Fire Officer, USFS - Region 3

ITINERARY:

- March 15. Arnold and López leave for Galápagos in TAME, arriving TAME flight at 12:00 Galápagos time.
- March 16. Leave Puerto Ayora at 2 a.m. on Darwin Station vessel Beagle IV, arriving 7 a.m. at Villamil - visit fire site and fire bosses.
- March 17. To fire site 04:00 - visit potential damage points on horseback. Leave for Puerto Ayora 18:00 hours on Beagle IV.
- March 18. Puerto Ayora. Pass to USAID/Quito information regarding fire and new list of equipment, personnel needs. López leaves at 10 p.m. for Villamil.
- March 19-21. Puerto Ayora - visit fire site on Santa Cruz Island and instruct daily communication Quito.  
To Baltra at 7 a.m. to meet Velasco and \_\_\_\_\_ due to arrive.  
Plane touches down at 2:30 p.m. overnight. Baltra Naval Base.
- March 22. Board MV Piquero after loading all gear plus 2 MAG tractors aboard. Piquero anchors in harbor for 24 hours on order of Defense Civil to wait for additional fire fighters due March 23. No amount of protest/appeal to put our gear on island prevails.
- March 23.
- March 24. Arnold and López return to Puerto Ayora.
- March 27. Arnold and López return to Quito.

**INTRODUCTION:**

This report covers a period of twelve days in Galápagos between March 15 and March 27. The original plan was for me to deliver to Isabela Miguel López and the fire equipment provided by OFDA, and then to return to Quito. However, López considered the fire so serious that not only was more equipment needed, but that conditions could worsen to the point where direct manpower assistance from the U.S. might be needed. Accordingly I set up a base in Puerto Ayora to act as radio liaison point between the fire camp at Isabela and USAID/Quito in case such emergency should arise. This phase terminated on Thursday, March 21 when Mr. Pat Velasco arrived on a FAE Buffalo with approximately 9,000 pounds of additional equipment and supplies.

the next phase involved moving Velasco and gear from Baltra to Isabela. This supposedly simple logistical step was to be made hopelessly complicated by the intervention of Defensa Civil, whose principal representative on Isabela ordered the District Naval Commandant to hold in Baltra the ship we had loaded until a group of 120 conscripts was flown in from the mainland, some 24 or 30 hours later.

The final phase of this trip consisted of delivering to Isabela of Velasco and gear on March 24, and the return on March 27 to make a personal report to Mr. Alan Swann of OFDA.

## CHRONOLOGY

### March 15, 1985

Arnold and López together with 1,890 lbs. of equipment leave for Galápagos on TAME's commercial flight. I had urged, cajoled, and all but demanded a FAE cargo flight of General Morral of Defensa Civil, but he refused even to request FAE for this transportation. The flight was delayed over two hours and we arrived in Baltra at 2:30 p.m. There was no direct boat transportation to Isabela but INGALA immediately took charge of getting us and gear from Baltra to Puerto Ayora with its own vehicles. Once in Puerto Ayora the INGALA representative loaded our gear aboard Darwin Station's launch Beagle IV. Meanwhile a Darwin station representative took us to the office of Dr. Gunther Reck, who made arrangements for Beagle IV to leave at 2 a.m. He, together with Ing. Mario Hurtado and the INGALA representative were all extremely helpful in every way. Such efficient cooperation was indeed cheering.

### March 16.

We arrived at Villamil at 7 a.m., offloaded the fire gear onto a dump truck and proceeded direct to the fire base camp some 20 km away. We arrived and offloaded the equipment and proceeded to distribute some of it to the firefighters. Despite ten handlings of every item in the shipment between Quito and the fire camp, all 35 boxes arrived intact, with no losses.

Bob Gara and Ing. Montesdeoca had been up until 2:30 a.m. with special forces personnel containing a line-jump in the fire due to a wind change. Nevertheless they were already on the fireline at 7 that morning.

The tools we brought were immediately put to use. The most effective were the backpack pumps, Pulaski tools, and chainsaws. Unfortunately the tool depot from which there were drawn had no fire swatters, which would have been extremely effective in direct control of fires burning in the bracken fern/grass fuel areas.

The control strategy consisted of direct and indirect attack. Direct attack was aimed at stopping the fire's advance at its own line. The previous day and night one D-6 Caterpillar available had worked with Special Forces personnel on direct attack with good success. That morning the tractor was to continue a line away from the actual line to hook up with the main road, completing an indirect protection break. Meanwhile the troops were handcutting a line and using backpack pumps to put out spot fires along this line. Later the tractor would come back and continue, this line, widening it with a mop-up crew to follow.

Four of the seven persons trained in the AID-sponsored fire management course in Arizona were on the fire line, plus one Peace Corps Volunteer with several years of fire fighting experience. Of these, two appeared to be very effective, Ing. Montesdeoca and Benavides of PRONAF, Ing. Paredes, also of PRONAF had been given such short notice that he had inadequate footgear, which rapidly deteriorated in the sharp lava rock and immobilized him. The two firemen from Cuerpo de Bomberos were out of their element in a fire of this nature. The Peace Corps Volunteer Joe Peters was a tireless, energetic and dedicated crew chief trying to muster enthusiasm out of apathetic local

civilians. He eventually got a crew of special forces personnel, who responded very energetically to his leadership.

The 60 special forces personnel were extremely effective firefighters, combining stamina, discipline and willingness to total commitment. They alone had been responsible for containing the line jump the previous afternoon.

In the early afternoon of that day, López and I went back to Beagle IV with Dr. Reck and cruised west to determine the extent of the existing fire. It appeared from the boat to form a J shape running south from the highlands and then west, paralleling the coast at a distance of several kilometers, burning briskly against an easterly wind. The total length was probably 30 km. We proceeded as far as C. San Pedro, where Dr. Reck talked with some Darwin station naturalists and learned that the tortoise population in that part of Isabela was in no danger from the fire in its existing location. We thus decided there was no need for emergency firebreak measures to protect the tortoise at the moment.

We returned to Villamil and spent the night at anchor. At 4 a.m. we went ashore and caught a truck up to the highest road point on the island. There López, Dr. Reck and Ing. Hurtado left on foot for a reconnaissance west along the crater lip of Cerro Negro volcano. I went back to the fire camp and talked briefly with Ing. Montesdeoca, Gara, and Lic. Cifuentes, the Galápagos Park Supervisor.

They had been awakened at 3 a.m. by the Junta Cantonal de Defensa Civil de Isabela for a meeting, a move almost that of psychological warfare on the Junta's part. (They earlier had tried to withdraw that D-6 Cat from the line, claiming it needed repairs, which was not true. They actually wanted to take the tractor off the fire. Only the quick action by Special Forces head Captain Montoya prevented its withdrawal). Ing. Montesdeoca told them that the upper sector was now under control and for the moment represented no threat. They returned to Villamil and informed INGALA that the entire line was under control, which was far from the truth. This information apparently went all the way back to Quito.

I walked some 5 km along the line cut by the tractor and then the handcut line which the tractor would come back and widen. The backpack pumps and Pulaski tools were very effective on this line. The greatest problem was keeping the backpack pumps supplied since the nearest water dump was at last 3 km from the line head. Troops had to go back and forth on foot, wasting valuable time and energy to refill their packs. Another problem was the wicked combination of porous lava rock, dry, undecomposed organic matter interweaving amongst the lava boulders 60 cm or more below the surface. Thus a spot extinguished literally superficially could continue to burn under the surface, rising again several hours or even days later. This required constant subsequent patrolling of all the lines, even those supposedly completely extinguished. Our backpack pumps were especially useful in working out these pockets.

At 8:30 a.m. I joined Bob Gara, Miguel Cifuentes and a park guard to do a horseback reconnaissance eastward along the edge of the crater Cerro Negro as far as Volcán Chico. This volcano had erupted in 1979, and there was some fear that it might be acting up again and causing some of the fires on the island.

As we rode eastward we could look back and see how the original fire had gone over the edges of the crater in several spots, burned to the base, then laterally, and then upward again to threaten the agricultural areas below to the south.

At the same time a new outbreak occurred on the south slopes of the volcano. This supposedly had been controlled and then extinguished, but, as noted above, it was never possible to know indeed if it had been put out completely.

Volcán Chico proved to be inactive and we returned to the roadhead from which we'd left, parallelling the new fire burning toward the crater. We arrived there to meet Miguel López together with Gunther Reck, Mario Hurtado and Arnaldo Tupuiz, the Isabela Park guard. They had seen several spots where the fire had gone over the top and down. They could also make out the lower line extending westerly ending in broken patches still well above the shore line.

We returned to Villamil shortly after 5 and left aboard Beagle IV to report to Quito. We arrived in Puerto Ayora at midnight Monday March 17.

Miguel López noted that in the U.S. the Isabela fire would have required 2,000 men on the line plus logistical backup in camps, tractors, helicopters, tankers and vehicles. At that moment this fire had one Cat D-6, one Clark front end loader, and about 90 people on the line. He felt that conditions were potentially explosive and that manpower might be needed from the U.S. He and I drew up a list of additional equipment needs to pass to Quito in the hopes we might wangle more out of OFDA.

We passed this information on to Quito, and decided that López would return to Isabela and I would remain at Puerto Ayora to act as radio liaison. That afternoon we met two people from the Junta Nacional de Defensa Civil who had been sent out to establish a HQ post in Villamil. We explained the existing situation to them, and it appeared that they and Miguel López were establishing a good rapport.

During the afternoon we were at the Charles Darwin Station with Dr. Gunther Reck and Ing. Mario Hurtado, both of whom were extremely helpful. They kept us in radio contact with Isabela and with PRONAF in Quito. The spirit of cooperation of these two members of the Darwin station cannot be emphasized enough.

We learned from PRONAF in Quito early that afternoon that Ing. Ponce was going to the Cancillería to present a report that the fire was completely under control and that no further help was needed. Luckily we were able to pass a message to Ponce before his appearance at the Cancillería to tell him that conditions were still critical and that the emergency still applied full force.

On the same Monday we received word that the Ecuadorian Naval vessel Huacapo had left Guayaquil Sunday with one large and one small helicopter on deck headed for Isabela and due to arrive that evening. This turned out to be false by some four days, Huacapo diverting to San Cristóbal for reasons never made clear.

López left for Isabela with Darwin Station Beagle IV that night.

March 19.

In the morning I discussed over the radio with Ing. Montesdeoca the rumor that he had informed PRONAF that no emergency existed. It appears that Ing. Jarrín had entrusted Edison Pérez with handling all information relating to the fire. Apparently Sr. Pérez had completely misunderstood Ing. Montesdeoca's message and had passed to Ponce a false picture of the situation.

Radio contact between Hotel Sol y Mar and the Embassy remained excellent. I was able to pass on a request for additional equipment and was informed that Mr. Velasco of USFS would be arriving Quito the following day with some 4 tons of equipment and supplies.

Radio contact with Isabela was also good and we were informed that equipment from the first shipment was being used to good effect, and that at least 10 km of fire line was contained. Miguel López felt that there was almost no possibility for the fire to endanger the populated areas, either the agricultural cone or the village of Villamil. Up to that point there was still no indication of danger to the tortoise population further west.

A new fire that had broken out on Santa Cruz Island, and at INGALA's request I went out to look at control efforts. This fire was three days old, and with a tractor the local people had contained it well. They were in the process of mopping up the hot spots, and doing a good job with the resources available to them. I was able to point out some special suppression activities to them, and promised to divert at least two backpack pumps for that mop up. That evening I was asked to present my thoughts on the current fire danger and control measures they might use to the local Defense Civil.

March 20.

I spent the morning between the Darwin Station, Park HQ and Hotel Sol y Mar trying to establish contacts by radio with Isabela and Quito. The one word we received from Isabela was that the two members of Junta Civil we'd met on Monday had clamped a lid on all communications regarding the fire and that no one was allowed to say anything. It was also impossible to raise the radio at the fire camp. Thus began a four day blank as to what was hapenning on the fire itself.

At 2 p.m. word came from Quito that Pat Velasco, USFS, had arrived together with the entire list of items requested including those added on Tuesday. He was to leave in 20 minutes for Baltra aboard a FAE Buffalo, which would arrive at Baltra at sunset. A plane arriving at a deserted airport on an island with no ferry connection between 2:30 p.m. and 9 the next morning presents logistical problems apparently unrecognized in Quito. There would be no one available to offload the 9,000 lbs. reported to be aboard, and no way for me to get there.

Fortunately for me (I thought) General Morral, Chief of Defensa Civil Nacional had first arrived. I presented the situation and requested his assistance. He nodded his head sagely and agreed that I indeed had a problem. He then disappeared and the next I heard he was on his way to Isabela without offering any assistance at all. About that time I heard that the flight had been postponed to the following morning - a great relief. I managed to arrange for early morning transportation to meet the plane due at 9, March 21.

I arrived at Baltra airport at 9 a.m. and waited until 2:30 for the FAE flight which finally arrived. We offloaded the gear sent with Pat Velasco, and found there was no SSB radio as promised by USFS. Also one of two handsets packed in Pat's gear had been stolen.

We moved all gear to the Baltra dock where we hoped the Ecuadorian LST Huacapo would pick it up. We then received word that M/V Piquero would arrive at 7 a.m. the following morning to load both our equipment and two light crawler tractors sent by MAG. We made a check of the items listed on Velasco's list and found no discrepancies except for 15 fire swatters missing out of the 80 requested.

#### March 22.

MV Piquero arrived at 7:15 a.m. from Puerto Ayora and warped alongside the pier. The two tractors were lifted aboard with no trouble despite some concern that their weight of 3 1/2 tonnes apiece was more than the 3 tonne lifting capacity of ship's gear. We loaded our shipment aboard by hand and

again checked the items against the manifest, finding all correct. At 9:30 the ship pulled away from the pier, only to anchor 200 yards out. To my dismay, I learned that Defensa Civil on Isabela had ordered the Naval District Commandant to hold the ship in Baltra for at least 24 hours until the arrival of new troops to fight the fire the following day. I tried to convince the persons responsible in Isabela of the importance of getting this equipment on the fireline, but they maintained that they had been ordered by Quito to hold the ship. I told them that in my opinion they and Quito (General Morral) were putting up obstacles to our efforts at fire control, and that I would complain to our Embassy. Fortunately or unfortunately it was impossible to raise our Embassy radio until about six in the evening, by which time it was too late to do anything constructive. About all I could do was sob on Dorsey's shoulder over the radio.

March 22.

At 11 a.m. a FAE Hercules passed over the ship to land at Baltra. I went up to the airport and met with the military officers in charge of a detachment of 100 engineer battalion soldiers. Realizing that the Piquero would be heavily overloaded with personnel I decided that Pat and I would disembark, go back to Puerto Ayora and catch whatever transportation available to Isabela. I radio'd both the Captain of Piquero and Miguel López to take charge of the cargo in case I arrived late - which indeed I did.

Velasco and I arrived at Villamil at 3 p.m. Sunday, just after López's crew finished unloading the cargo. The count on pieces was short by three out of

420 cartons of MRE rations and the 15 out of 80 fire swatters mentioned earlier. Otherwise everything was complete, which was indeed cheering.

We went up to the fire camp and discussed the situation and the strategy. I was ready to bring López and Gara back to Quito to present a report to Mr. Swann of OFDA. However in their opinion the next three days were going to be critical in trying to hold the line to protect the tortoises in an area along the coast. The fire was then burning east-west along a front estimated at 25 km, and moving southward at about 2 km per day. It was entering a region of heavier fuel load and greater danger to the firefighters. (In fact they had to call a helicopter evacuation of one team when the fire ran at one point. Also one PRONAF professional who had attended the fire course in Arizona at one point put himself in an extremely hazardous position from which López was afraid he might not escape. He did, but only narrowly. Miguel had warned him emphatically against taking unnecessary risks, but he would not listen.) As a result of Gara's and López's recommendations I decided to leave them on the line. By Sunday, López had raised his earlier designation of this as a 2,000 man fire to that of a 3,000 man fire.

As I left, Pat Velasco was involving himself with both the PRONAF foresters and the special forces officers and troops. It appeared that he was well on his way to a good working relationship.

I left Isabela at 10 p.m. and returned to Puerto Ayora during the night.

March 25.

I arrived back at Puerto Ayora at 5 a.m. During the morning I discussed the fire situation with personnel of Parque Nacional and the Darwin Station.

At 11 I had a long radio conversation with Econ. Roque Sevilla, Director Nacional del Programa Nacional Forestal. I was extremely encouraged by his ready grasp of the situation, his questions and his willingness to take decisive action in communicating with Ministry of Defense. However by the end of the day he had been unable to reach that Ministry. Bon Gara, in a radio contact, emphasized the need for the tractors, for night lights on the tractors, and more effective use of Huacapo's helicopter. The captain of Huacapo was allowing its use perhaps 2 hours per day.

The Embassy radio informed me that the Embassy aircraft would do an overflight of Isabela on Wednesday, March 27, and that a high-level strategy meeting would be held at Baltra. Miguel López's presence was requested so I had to start agitating for transportation for him.

I also learned that Ing. Montesdeoca had decided to move the base fire camp outside to Villamil on the shore to be closer to the fire. Up to this point they had been operating from a point in the highlands and by March 24 the trip to the fire line took an hour by dump truck and two hours on foot. The new camp is on an abandoned road that can be reopened easily to within a short distance of the existing fire.

March 26.

At the Darwin station I made an early morning radio contact with Bob Gara on Isabela to tell him that López was needed to meet the AID group coming the following day. López had been out on the line backfiring the night before and was still at the advance camp. Gara was sending someone after him.

Gara said the fire line was fairly quiet due to lower temperatures and higher humidity during the previous day from a fairly heavy cloud cover. All three tractors were on the line and he felt they were making very good progress, although he had not been on the line himself.

At 11 a.m. I spoke with Econ. Sevilla at PRONAF from the Park headquarters. He said he was passing to the Minister of Defense the requests we had made for more helicopter time, for relieving the special forces, and for the tractor headlights.

At 5 p.m. Miguel López arrived on "Santa Fé". An INECEL engineer tried to expropriate the boat for himself, and only acceded to Gara's and López requests to allow López aboard after they told him they would throw him overboard if he didn't. (Apparently he stayed next to the captain the whole voyage, and well clear of López.) Two foresters of PRONAF also came back on route home to Loja and Quito. Loss of the Loja-bound forester, Ing. Benavides was a real loss, as he had shown himself the most effective of all those who'd attended the fire course. The other, who had almost immolated himself, was probably no loss at all.

López gave me an update on the fire. He was optimistic over the possibility of getting a line in to protect the tortoises within two or three days if existing conditions held. He knew there were other fires above on the mountain but not to this extent.

We arranged - I thought - all the logistics for getting across the island, getting across the channel and arriving at Baltra airport to meet the Embassy plane at 8:30 the following morning.

The army engineers who had arrived Sunday were proving themselves excellent logistics people, especially considering the resources at hand. Their motor pool personnel are excellent mechanics, and they took over the responsibility of maintaining and repairing the tractors, grader and rolling stock. They also set up and kept a schedule of traffic of vehicles which finally brought some order into morning people and gear. Their performance was an unexpected and pleasant complement to the excellent firefighting of the special forces people.

March 27.

Plans fell apart for arriving at Baltra airport at the appointed hour of 8:30. The PRONAF foresters had overslept and were hungover and we didn't get away until 7:45. When we did arrive at the Baltra channel there was no one to run the ferry or the truck. We watched as the Embassy C-12 made two passes, and finally arrived with the first load of passengers at about 10 a.m.

We held a briefing for the people who had come in: Alan Swann of OFDA; Neal Meriwether of AID; Roque Sevilla and Arturo Ponce of PRONAF; and Gunther Reck of the Charles Darwin Station, explaining the situation of the fire as we know it. There was a 2 hour delay in getting off on the reconnaissance flight because of refueling problems. The plane finally took off at noon with all the above people plus López. I stayed on the ground and caught the TAME flight to Quito.

Conditions on Isabela apparently shocked everyone, especially López. The line in the tortoise area appeared to be progressing well, but in the highlands at least a couple of major outbreaks and a lot of smaller smokes showed the fire way out of control there. López probably felt that all fires should be extinguished, a feeling not shared by Roque Sevilla nor me. We believe the tortoise fireline should be secured as quickly as possible, and the rest of the fires go as they will.

There is an abandoned road from Villamil leading almost to the fire line. López and I had recommended opening this road for fire traffic, but Ing. Montesdeoca, the fire boss, had resisted this idea for reasons not explained. Gunther Reck also opposed its reopening because of the future access it would give. We tried to convince him that because there were no privately owned 4x4 vehicles on the island and because we could easily block the road with trenches and boulders once its usefulness was ended. He appeared to remain unconvinced, unfortunately.

March 28.

Radio contact with Gara was bad, with frequent breaks. He said they'd made 7 km of road line the previous day, and that another 2 to 3 days should complete the line to the lava flow. He emphasized the need for tractor lights.

Apparently Huacopo's captain is freeing up helicopter time, for they are making 9 a.m. and 4 p.m. reconnaissance flights of the line.

Drafted by: PArnold/sc

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CONCLUSIONS

A number of conclusions about this trip and the fire itself should be considered.

First and most important was the lack of knowledge about the fire itself from the moment it started. Judicious use of fixed wing aircraft when first suggested could have provided a reconnaissance platform and intelligence needed to assess the fire's actual situation, its progress, and its potential. The first reconnaissance by technically qualified people was on March 12, when Bob Gara and Ing. Jorge Montesdeoca went in an Ecuadorean Navy C-12 aircraft. From that came the first real recognition of the fire's significance.

The use of the Embassy aircraft was suggested a number of times but not until March 27 was it actually put into service for this use. This was the first in-depth aerial reconnaissance with a U.S.F.S. technician aboard, in the three weeks since the fire began.

Despite urging on my part the head of Civil Defense refused to request reconnaissance by Ecuadorian Air Force plane for our technicians, though he himself made two flights. But he had no one aboard who knew what they were looking at or how to map it.

If, for example, Bob Gara and Miguel López had been able to fly the fire on March 16, the day López arrived in Galápagos, we could have advanced our request for OFDA assistance by 4 days, and provided a more comprehensive list of equipment needs.

In any future fire situation of this nature in Ecuador, I strongly recommend that adequate aerial reconnaissance be a first step before trying to analyze the fire's threat. This would preferably be by Mission aircraft if analysis is for the purpose of deciding on providing U.S. assistance.

If it is impossible to establish such priority use of Mission aircraft, we should make every effort to assure that Defensa Civil can rely on FAE support to provide aircraft immediately, and that Defensa Civil guarantee to have at least one observer with fire experience aboard, someone capable of analyzing the situation.

A second step in a fire of this size is to get at least one helicopter on the scene for both reconnaissance and logistical support. Again, I agitated with General Morral beginning March 14 for such support but he argued that no one in FAE would consider such a request. He never made it.

A second conclusion is that the Government lacked any coherent cohesive organization to conduct a fire campaign of the nature. An interesting article in the press quoting a spokesman for Fundación Natura (Ecuador's environmental and conservation organization created by AID funding) strongly accuses the Government of this lack, and I think all of us involved in the fire agree.

Not until March 13 did anyone develop a fire plan, at which time Bob Gara and Ing. Jorge Montesdeoca of PRONAF presented one on the basis of their assessment of the fire situation. We took this to General Morral of Defensa Civil, who approved it. This established Ing. Montesdeoca as fire boss, and the General wrote a letter to the Governor of Galápagos informing him of this delegation of power from the head of Defensa Civil.

When Montesdeoca and Gara presented the plan and letter to the Governor and local authorities on Isabela, it was received with no great enthusiasm. In fact there were several days of lack of cooperation and resistance to supplying logistical needs of the firefighters.

Somehow a better recognition of common cause must be generated in emergency situations like this. Somehow the need for organization to put technically qualified people in charge of this kind of emergency is needed. Morral sent over two people from Defensa Civil Nacional in Quito to take charge of all aspects of the fire, basing in Villamil. To the best of my knowledge, neither visited the fire line. Nevertheless they clamped down a lid on communications, and they prevented my delivering the needed four tons of USFS gear in timely

fashion. Admittedly, however, once the base camp was moved down the hill, according to Gara, a much better relationship with Defensa Civil developed, and with a mutual sense of cooperation.

Miguel López pointed out that local people resented outsiders coming in to fight their fires, even though they had little human or material resources to do it themselves. They resented what I believe they felt to be a sense of officiousness by the military and by PRONAF people. If there is one strong attribute of Ing. Montesdeoca, it is that he is unfailingly diplomatic and polite in his contact with anyone. Therefore I do not believe that he can be blamed for causing whatever problems arose.

A third conclusion considers logistical support. I hope someone will write OFDA and the Forest Service in appreciation of their extraordinary performance in providing gear and people requested from here. It took less time to mobilize and deliver to Quito than it took us to get the material and technicians to the fire site. Admittedly, once delivered to Baltra air strip, the major transportation problems began. I am grateful to Alan Swann's comment that he had no idea of what logistics were entailed in Galápagos until he saw the situation himself.

In terms of manpower support, the personnel provided by the Ministry of Defense were little short of superb, both the Special Forces and the engineer company. Each of these groups had special strengths, the Special Forces in their physical condition, spirit, and discipline, and the engineers in their ability to mobilize transportation and tractor operations.

A final conclusion: communications between fire line, Villamil, Puerto Ayora and Quito were hard to maintain with the scanty radio setup available.

Nevertheless I think an incredible job was done, primarily because everyone was so cooperative in trying to make things go. It is to be expected that the Park Service and INGALA would do their best, which they did. But the efforts of the Darwin Station, and the Hotel Sol y Mar and for a very short time the radio officer of MV Piquero, I especially appreciated. Without the cheerful and efficient help of Sr. Jorge García of the Sol y Mar, radio contact with Quito would have been extremely difficult.

There is no question but what radio communications needs must be better analyzed and better served in any future emergency of this type. We could have used more handsets and certainly some equipment capable of direct communication between the fire camp and Quito.

One final conclusion and a recommendation: it is hard to imagine that in Ecuador a fire situation more difficult to assess, more difficult to supply, or more difficult to control will be encountered again. I told one of the PRONAF professionals that in my opinion any future range/forest fire he'd be involved in would most likely be a picnic by comparison, and we agreed.

My recommendation is that once everyone has come home from this fire, that an intensive post mortem be held to determine what positive lessons can be derived from this experience. I overheard Alan Swann suggesting to Miguel López that he and Velasco come to Washington for such a dissection. If at all

possible I would like to see Miguel, perhaps Velasco, and certainly Alan Swann back here in Quito so that the Ecuadorians themselves can be involved directly in developing a useful critique of what happened, what could have happened, and what should have happened.

Drafted by: PArnold/sc

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