DIDYA NATIONAL PARK

In my start of my second dry season in Ghana we were sent down to a National Park Reserve called **Didya** (also Didja) in the central part of Ghana, between two arms of the Volta Reservoir. It has been established on paper years before but little had been done there other than establishing a few anti-poaching camps. We went to the eastern region and used a government boat to go across the reservoir to the park. We were to look at wildlife numbers in a portion of the park and consider options for development in the long term. It was a tough situation. We were very isolated. There was a bit of road from the west leading into the park, but the wet season was approaching and the road crossed two rivers that were a 250 m of sand in the dry season and flowed 2 m deep in the wet.

There were people from Burkina Faso and other areas north of Ghana who were living in the park illegally and had been doing so for years. They were not happy to see us arrive. The end result was a serious conflict that resulted in the murder of one of our crew. It is a long story from the dark side of Africa that even 50 years later is hard to talk or write about. Real world conservation in Africa is not for wimps.

Didya Arm at sunset, 1971.

It was a wonderful wild place with endless plains punctuated with granite monoliths (called kjopes or inselbergs in other parts of Africa). We spent long hard days doing surveys, on short rations and then I got ameobic dystentary when I simply couldn't leave

to get treatment. You can see me in the final photo below, finally heading out. I weighed 125 lbs.

The Volta Hills in eastern Ghana, across the reservoir, 1971.

So, fast forward to the year 2007. Nothing had really changed there and there was effectively no infrastructure or development. John Mason, one of West Africa's most effective conservationist called me. A large European company was looking a developing a huge industrial farm to the west of the park. There was some interest on their part in helping to finance proper management of the park. The copy of my report on the area had long since been eaten by the termites in the old "library" at Mole. So, to help out, I retyped my copy that I had here in Canada and sent it over, hoping it might help with this effort. The result is below. A bit dry for most readers other than biologists, but it does give one a sense of what we did there so many years ago. Unfortunately the land deal for the company fell through and so nothing transpired. The area remains a national park on paper but we were never able to find funding for doing something there. It is unfortunate, the south end of the park is relatively close to Kumasi, a large city and there are still 200 elephants in the park. We need a benefactor like the American billionaire that has financed the rehabilitation of Gorongoza National Park in Mozambique, a wonderful conservation success story.

COVER LETTER TO JOHN MASON AND THE DEPARTMENT

November, 2007.

Attached is a revision to a report written by the Faunal Survey Team in 1972. I have revisited it to provide some historic background to conditions in the Park today. Original sketches are included, and some photos from that era, that I recently had digitized, are included in this version of the report.

Portions of the original report also dealt with boundary issues, but are not included here. Some additional data comparing wildlife densities in the park to those found in the same era (1970-72) and completed after the field work was completed in Digya NP, are included here, that were not included in the original report. I have also included some information on hippo, elephant and other species, from our work in that era that may be of value 35 years later. The Discussion section is revised significantly. (My editing and organizational skills seem to have improved over 35 years).

I hope this information will assist in the development of the park and surrounding area.

Bob Jamieson
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Former Assistant Game Warden
Dep't of Game and Wildlife
Ghana.

A FAUNAL SURVEY OF SELECTED PORTIONS OF DIGYA NATIONAL PARK.

BY: BOB JAMIESON-ASSISTANT GAME WARDEN
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GHANA.

Original Report dated May, 1972, revised November 2007.

ABSTRACT

The area around the Dwija Arm portion of Digya National Park was surveyed to identify park and wildlife values. Several large inselbergs occur and are an important aspect of the Park. Relic forests and the vegetation on the inselbergs are of interest, however, the tree-stumps left along the shoreline of the Reservoir present a problem in terms of aesthetic values. Wildlife populations show serious effects from over-hunting. Populations are estimated at 25 animals per square mile (xx/km^2) along the shoreline, but decreased very quickly as one moves inland. Fishing and swimming are other potential attractions in the area. It is recommended that a moratorium be put on development of the Obodwase (bearded rock) area for five years to ensure that the scenic value of this area is not damaged. Further surveys should be carried out to study the increase in wildlife populations, the sport fishing potential and the rate of decomposition of the tree trunks in the Volta Reservoir.

A FAUNAL SURVEY OF THE DWIJA ARM AREA IN DIGYA NATIONAL PARK.

INTRODUCTION

The Volta Game Reserve was gazetted as Digya National Park in 1971. It covers 3,478 km^2 of mostly flat terrain punctuated by sandstone inselbergs and is the second largest conservation area in Ghana. It is situated on the west shore of the Volta Reservoir. In 1971 it supported small numbers of elephants, several ungulates and primates. Hippos, manatee, lion and leopard were thought to occur but there was little but circumstantial evidence of their presence.

During the latter part of the 1971 dry season the Faunal Survey Team worked in Digya National Park, dividing their time between the Ntoaboma area and the Dwija Arm. This information is important to the long range planning of the park since the Dwija Arm is expected to be the focal point for development of the Park.

STUDY AREA

Few maps were available in 1972. Map 1 below is a satellite based air photo (from Google Earth) that shows the park and surrounding area.

METHODS

We had a boat available to us and we visited most areas along the shoreline of the Dwija Arm and portions of the west shore of the main Volta Reservoir. For the wildlife surveys, a strip census technique was used. The format was basically that designed by Hemingway 1969, but adapted to the Guinea woodland habitat. Pairs of observers walked lines one kilometer apart and from 3 to 10 km long. These transects were started between 7:00 am and 9:00 am and usually ended before 1:00 pm. A variety of measurements were recorded at each wildlife sighting to document the effective strip width in which we were observing animals. A detailed discussion of the data collected and the statistical analysis of the information are discussed in Jamieson 1971a. Much larger data sets were collected in Mole National Park and were the basis for this work. Information on all aspects of the park, i.e. vegetation, topography and soils, were also recorded on these transects, as well as during other treks through the Park and on trips along the shoreline by boat.

RESULTS

CLIMATE

The climate in the area is described in detail by Child and Manu 1970. The only additional information collected in this study was rather subjective but is indicative of a rather important attribute of the local climate. During the study, which ran well into what is generally thought to be the beginning of the wet season (June 15), we experienced very little rain at our camp on the Dwija Arm. At the same time, we were able to watch thunderstorms far to the east dropping rain almost every day in the Ejura and Apapaso areas. It would appear that the Togo Hills are acting as a barrier to clouds moving inland and are creating a "rain shadow" effect over the Park, thus creating a hotter and more extended dry season than occurs in other areas of similar latitude.

Assuming that this effect does in fact occur, we should expect:

1. A reduction in overall carrying capacity of the park, due to more severe climatic conditions resulting from the rain shadow effect.
2. An increase in the concentration of wildlife in the Park, since during the extended dry season good forage and water can be found in only a few areas.

SOILS

The soils of the park are described in detail in Child and Manu 1970. It is important to note that most of the better soils in the area were flooded by the Volta Reservoir, and much of the remaining area is occupied by very poor upland soils. The only good soils are found in the lower portions of the Wa, Dwija and Bouna River valleys.

TOPOGRAPHY

The Dwija area contains a number of quite spectacular inselbergs. Though most are no more than 300 feet (100m) above the surrounding terrain, they do provide excellent locations for development of scenic viewpoints. Where they are located in especially scenic areas along the west shore, they provide an exceptional view of the Volta Reservoir and the Togo Hills as indicated in Photos 1 and 2. The most important inselbergs are indicated in Figure 1, and are discussed below.

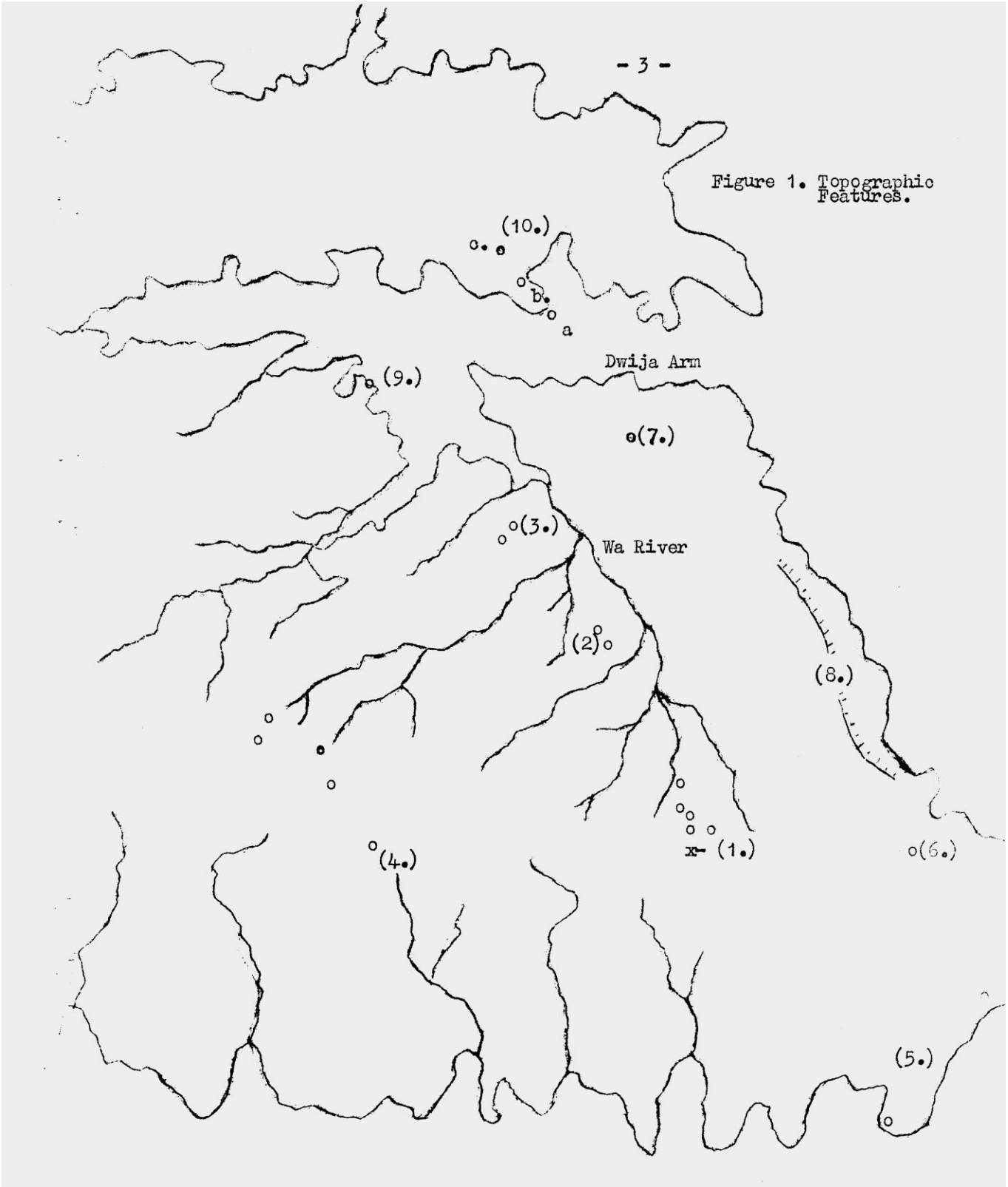


Figure 1. Topographic Features.

1. **Monasepo –** This is the highest inselberg and the highest point in the Park at 734 feet. It is located in a very dry area; therefore it has potential as a view-point only. Five smaller inselbergs occur close to this one, and there is one large one located about two miles to the south, about half way toward Patwi and Bandoribi.

2. **Patwi and Bandoribi –** These two inselbergs provide a prime location for a motel development. They provide an excellent view of the Wa River basin and the other inselbergs in the area and they are located on the edge of the Wa River at the extreme inland point at which permanent water remains in the river throughout the dry season. It is thought that a major wildlife concentration will occur in this area. There is also a waterfall, running only during the wet season, located between the two inselbergs, as well as an area of relic forest.

3. **Un-named –** Two inselbergs occur near the mouth of the Wa River, where it enters the Dwija Arm. Though small and unexceptional, they do overlook apportions of the Dwija Arm and are fairly accessible from the reservoir.

4. **West Slope –** Six or more inselbergs occur in this area, generally in a line along the western edge of the Wa River basin. Though small, some are quite as spectacular as others lower in the basin. They occur in a line, or two sets of lines from the Maro River south toward the Obosum Arm.

5. **Ntoaboma Area –** Two inselbergs occur, both are of a fair size, but neither are exceptional in character.

6. **Oboyang Rock –** This enselberg is of special interest as it provides an exceptional view of the Volta Reservoir and Togo hills. Figure 2 is a sketch of the view it provides. Dense forest occurs on the south side and impenetrable thickets occur on most if its slopes. The rock appears to be of some importance as a refuge for wildlife; a troop of baboons and a bushbuck were observed. Below the inselberg and toward the Volta Reservoir is a smaller hill, which is of value as a potential location for a view-point, since its slopes are gentle enough that a road could be built to its summit. It is unlikely that more than a footpath could be built onto the main Oboyang Rock.

7. **Binansipo –** This is a tall hill rather than an inselberg, lacking the solid rock slopes of the other inselbergs. It's location near the mouth of the Dwija Arm gives it an excellent view of the Dwija Arm, the main Volta Reservoir and the Togo Hills. The view is comparable to that found at Oboyang, except that the hills are closer and more picturesque than at Oboyang. At Oboyang, the peninsula representing the extreme eastern end of the Park occupies the front of the scene and adds depth to the view. On the other hand, at Binansipo one can see the Dwija Arm running to the west, the main Volta Reservoir to the east and one tends to be much impressed by the vast size of the Volta Reservoir. Binansipo is also an important guide-post for locating the entrance to the Dwija Arm.

8. **Kokrawde –** A long scarp, 100-200 feet tall, runs the length of the east shore. The high point is a small inselberg called Kokrawde. Severl points along the scarp could provide view-points comparable to those at Oboyang and Binansipo.

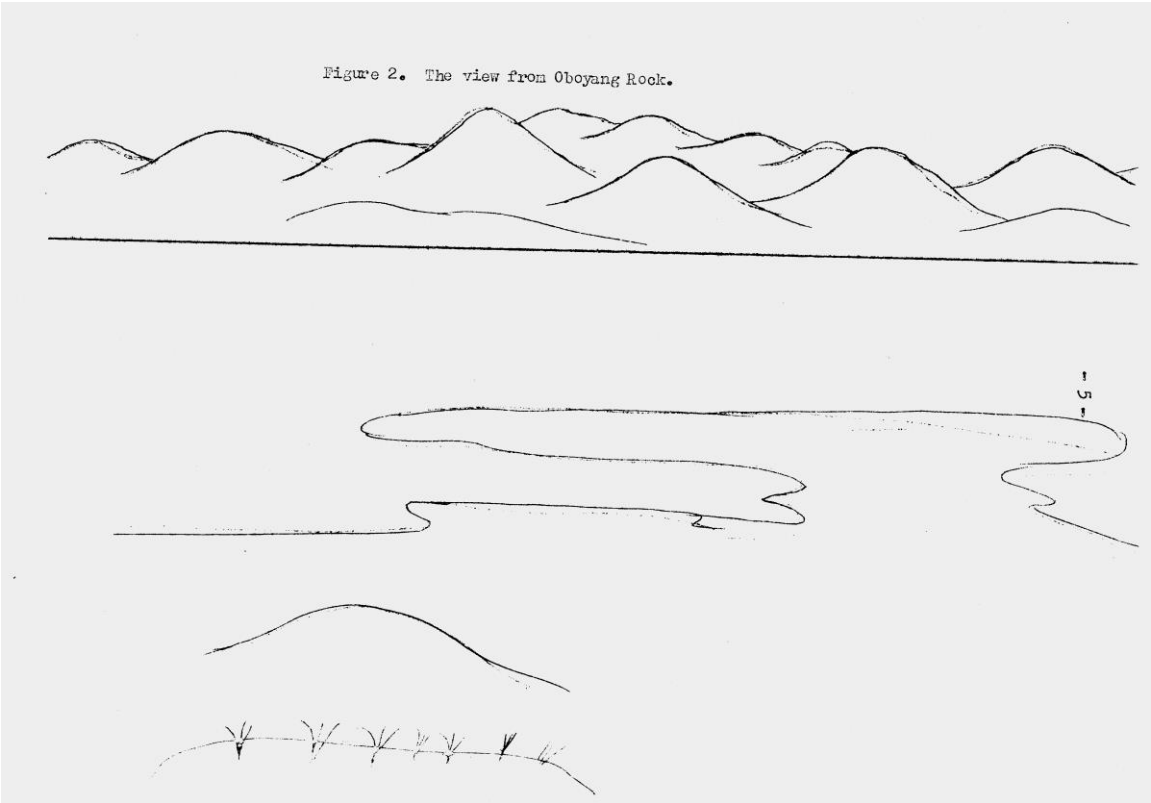
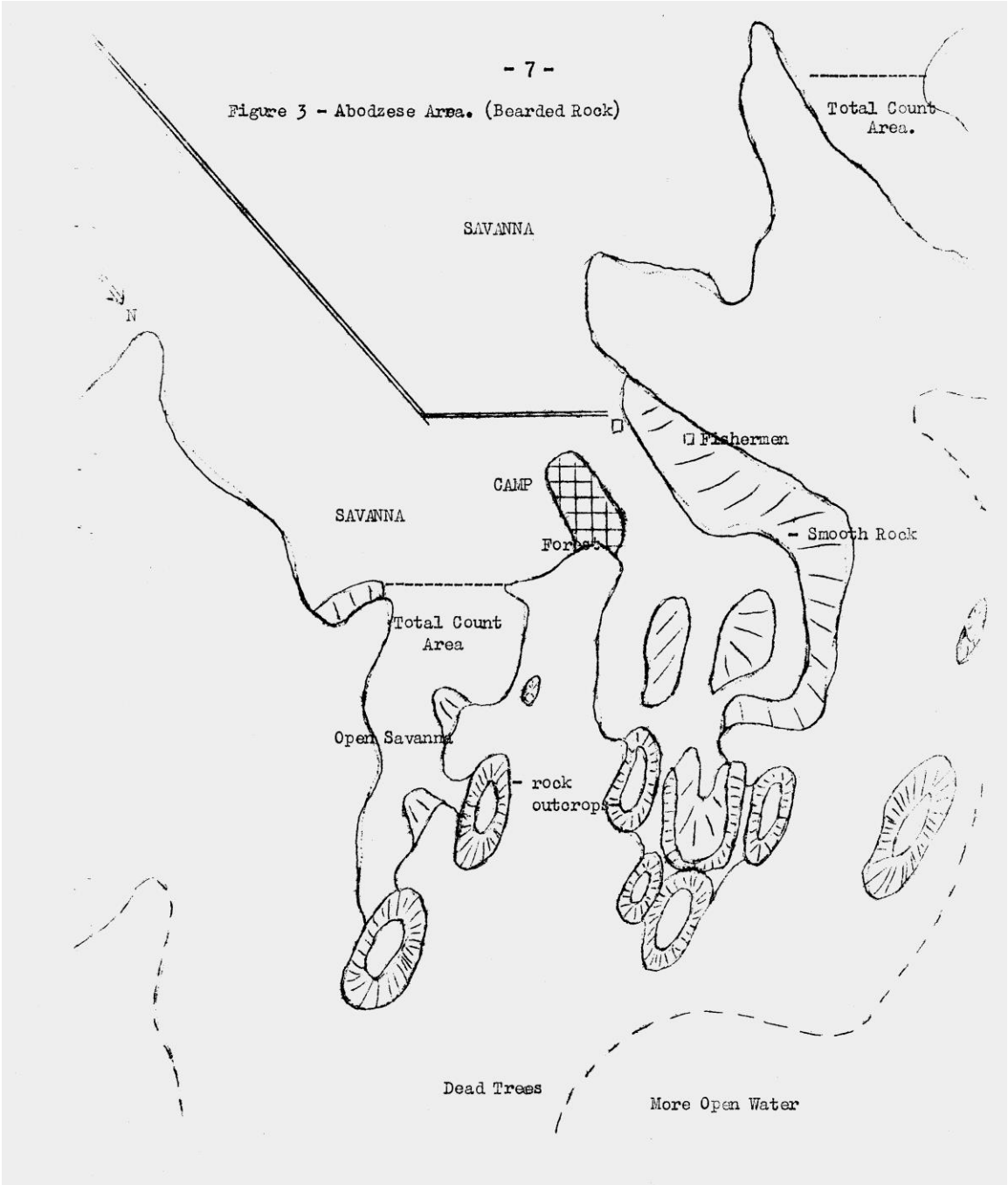


Photo 1. The view from Digya Park east toward the Togo Hills.

Photo 2. A second view from Digya Park east toward the Togo Hills.
(Taken from the Binansipo Inselberg).

9. **Abodwese –** This inselberg, (or bearded rock) which might be better described as a headland, as it projects out into the Reservoir, will probably provide the focal point for development in the Park. Figure 3 indicates the general layout of the area and Figure 4 is a sketch of the view from the top of the highest and eastern-most rock. Photo 3 is a view of the inselberg complex from the Dwija Arm. Photo 4 is the view of the Dwija Arm from the top of the inselberg. The inselberg is essentially a collection of smooth granite/sandstone monoliths rising out of the reservoir. On two sides the rocks drop off vertically into the reservoir. The rocks on either side of the point produce a sheltered bay hidden between the two sides of the rock. In the head of this bay there is a small patch of relic forest, in which two species of monkeys were observed, as well as several smaller mammals and evidence of larger ungulates, primarily Waterbuck. At two locations within the bay and at several other points along the outside of the point there are smooth rock shelves running out into the Reservoir, providing excellent beaches. The usefulness of these sites for swimming, etc., will depend on the water levels in the reservoir.

Figure 3 - Abodzese Area. (Bearded Rock)



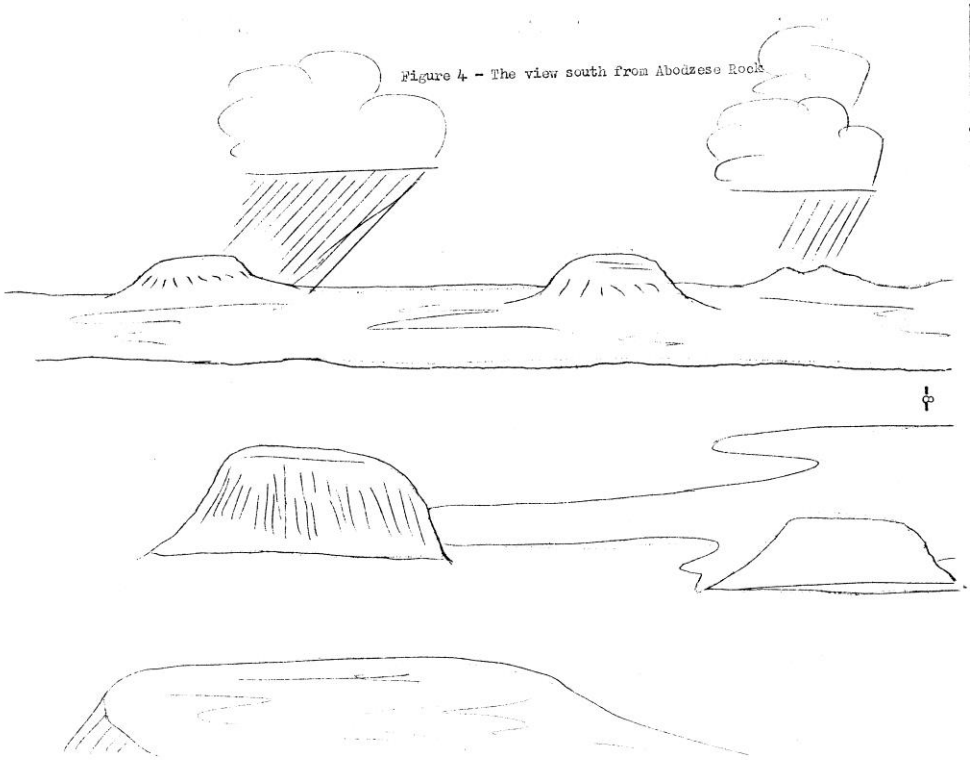


Figure 4 - The view south from Abodzese Rock

Photo 3. The Abodwese rocks from the Dwija Arm

Photo 4. A view north across the Dwija Arm, from the Abodwese rocks.

10. **North Shore –** There are several inselbergs and rocky areas along the north shore of the Dwija Arm. None are as large or spectacular as Obodwese, but all provide excellent opportunities for swimming, trekking and exploring in a small boat. At location "a" in the reservoir, there are three small islands consisting entirely of smooth rock, excellent locations for sun-bathing and swimming, when the reservoir is at or near full pool). Deeper in the same bay at "b" is a small, steep inselberg set back from the shore about 200 yards. It is quite spectacular from the shore and provides a good view of the surrounding area. It is surrounded by a dense forest and thicket. Further inland at "o", there is another inselberg rising out of an extensive area of relic forest.

VEGETATION

Vegetation also has been described by Child and Manu 1970. The information relevant to this study is the following:

Relic Forest – Most of the transitional rain forest in the area was flooded by the Volta Reservoir. Only a few patches are left, as indicated in Figure 5. Extensive riverine forest occurs along all the major water courses.

Borassa Palm stands – In the center of the Park there is an areas with relatively large numbers of these palms, more than the author has observed in other areas where the faunal survey team has worked.

Iron-pan Flats – These open areas occur throughout the park and provide good opportunities for game viewing. They should be mapped in the future so that they can be utilized in building game viewing roads.

Woodland – The woodland in this park is similar to that at Mole National Park, with the trees being slightly taller and perhaps somewhat more open. The grass cover is not as high as that found in Mole NP in the wet season. Visibility is likely somewhat better than in Mole NP.

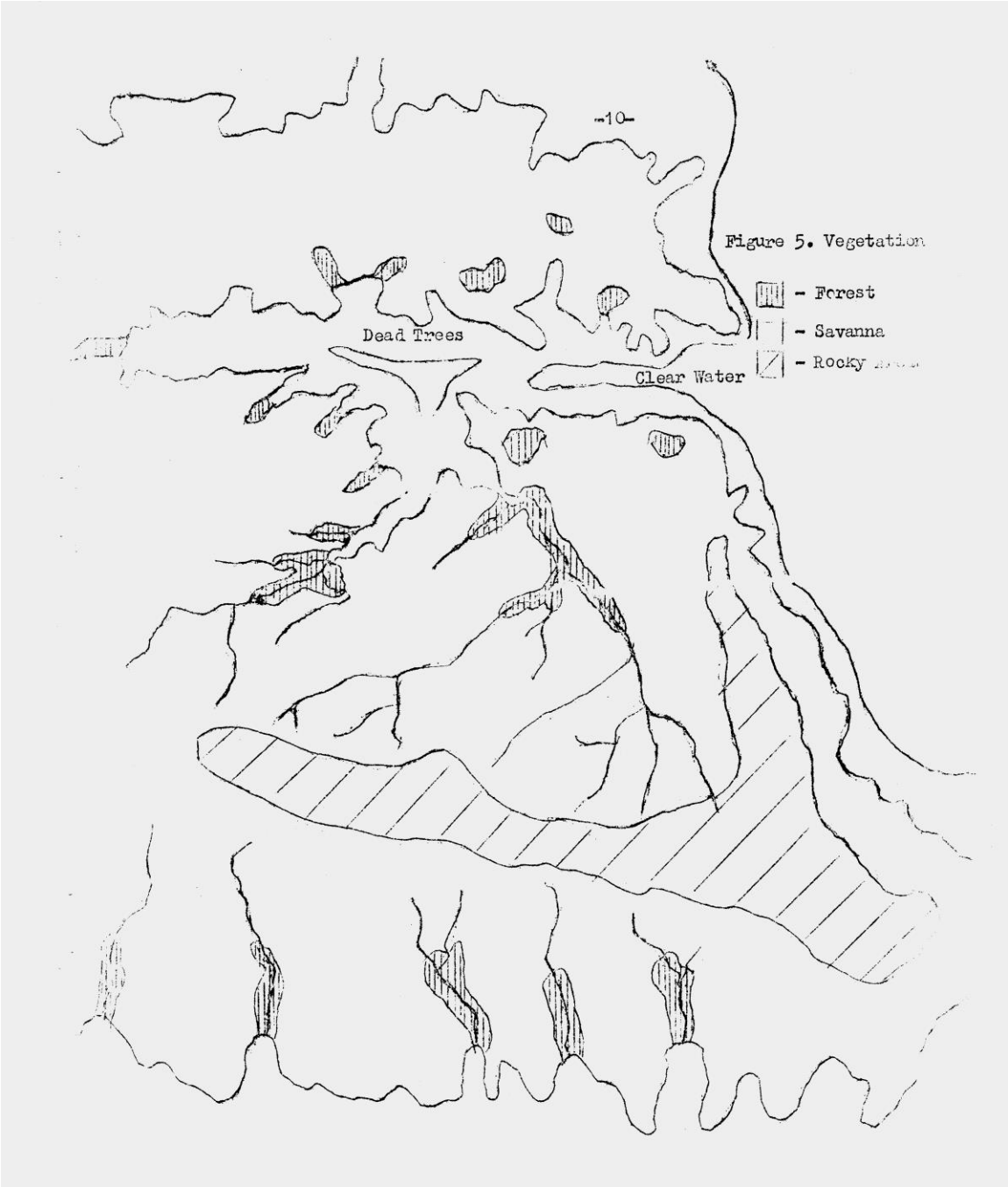
Inselberg Vegetation – Quite specific vegetation types occur on and around some of the inselbergs. Relic forests are found associated with some and dense bush occurs with many others. Several were found with patches of grassland growing in depressions in the bare rock.

Vegetation in the Drawdown Zone – Each year the level of the Volta Reservoir fluctuates approximately 9 feet (3 m), alternatively exposing and submerging large areas along the shoreline. Specific plant communities have already developed at these locations and are described by Hall 1970. They are of special interest since some on the dominants in these communities provide excellent forage for ungulates. It is expected that these areas will see heavy use by ungulates as populations recover, especially in the dry season. Since there areas are quite open and they are photogenic, with a thick green carpet of young grass, these areas will provide excellent opportunities for game viewing in the future, as indicated in Photo 5.

Photo 5. Hippo tracks in the vegetation in the drawdown zone of the Volta Reservoir.

Floating vegetation – Aquatic plants, principally *Pistia stratiotes, Lemna sp., Salvinai nymphellula and Scirptus cubenis,* occur in Reservoir Volta and have been of some interest due to the problems constitute to fishing opportunities and the control of bilharziasis. Pierce 1971 studied these problems in some detail. It would appear that aquatic weeds are not especially common in the Park area and it is unlikely that they will provide problems related to developments in the Park.

Figure 5. Vegetation in the east portion of Digya National Park.

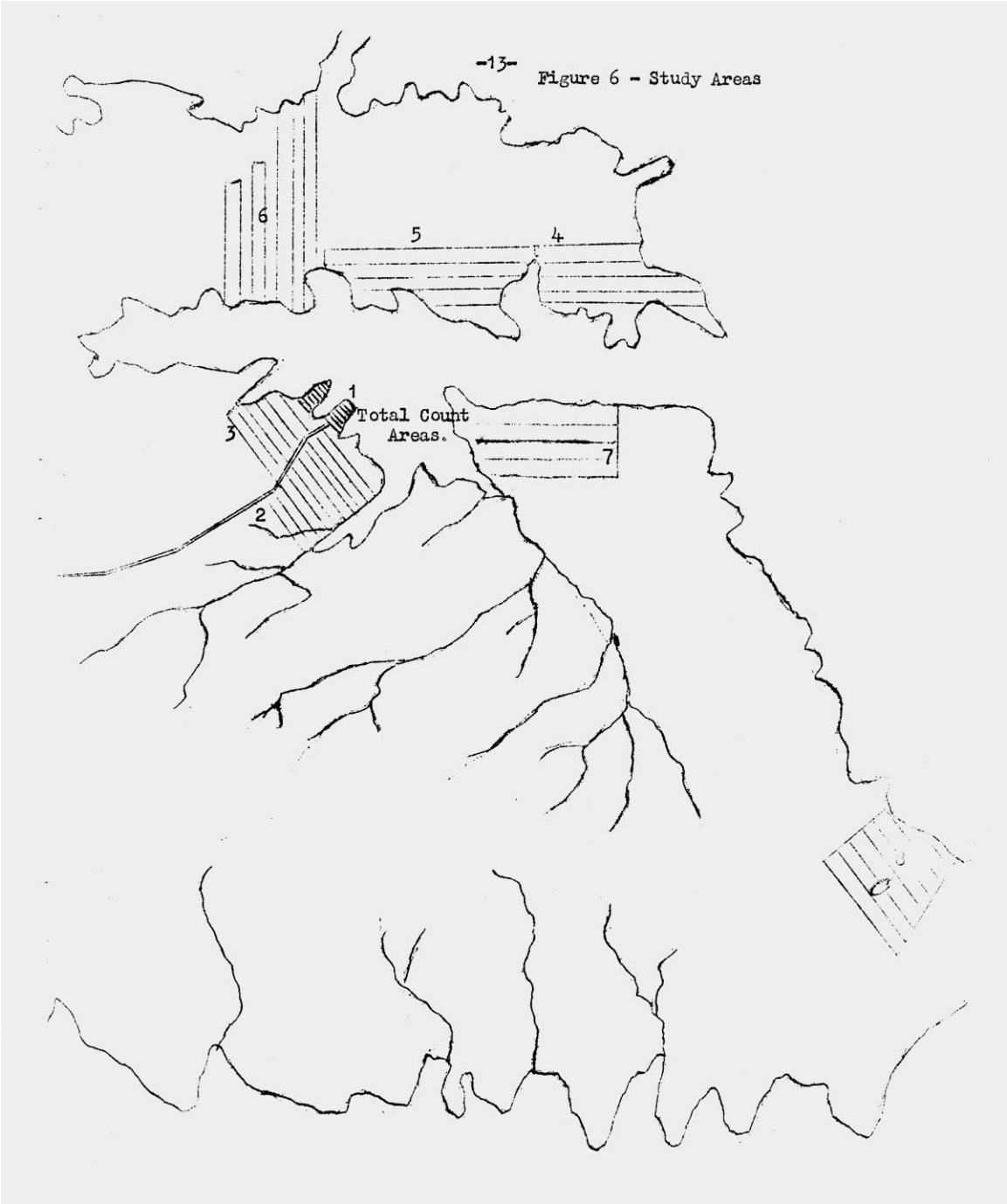


TREE TRUNKS IN THE RESERVOIR

No clearing was done before the reservoir area was flooded and as a result the trunks and larger branches of trees protrude from the water in all shallow shoreline areas. Extensive areas in the western portion of the Dwija Arm contain thick stands of these dead trees (Photo 4 and Figure 5). They make water travel dangerous and make the area rather unsightly. **The removal of these trees must be an important consideration in planning development in the area.** The stumps are in various stages of decomposition and only the largest remain solid. It isn't known how long natural processes will take to remove these trees, though various people working for the Fisheries Project on the reservoir estimate 30-50 years. Experience in other reservoirs in Africa may provide some guidance, though few large reservoirs pre-date the Volta Reservoir. No studies of this problem have been carried out in tropical areas, however in similar situations in temperate regions some stumps have remained in reservoirs for over 100 years. However it appears that trees that are up-rooted sink very quickly, thus eliminating problems with floating logs, a major problem in many temperate reservoirs. It is likely that some clearing will have to be done to provide good access to the Dwija shoreline. The condition of the trees is such that this might be accomplished by dragging a heavy chain between two large tugs.

WILDLIFE SURVEYS

Child and Manu 1970 discuss the species that occur in the park. In this survey an attempt was made to collect more detailed information on wildlife populations. Six areas were sampled using line transects, as indicated in Figure 6. The numbers of each of the species observed are provided below in Table 1.



wildlife photos?

Table 1. The number and frequency of large mammals observed.

Species	No. observed North Shore of Dwija Arm	No. observed South Shore of Dwija Arm	TOTAL	Frequency
Buffalo	0	0	0	-
Roan Antelope	0	0	0	-
Hartebeest	1	1	2	1.5%
Waterbuck	7	22	29	18.1%
Kob	9	2	11	6.9%
Large Ungulates	**15**	**25**	**42**	**26.5%**
Oribi	0	0	0	-
Bushbuck	2	6	8	5.0%
Warthog	1	29	30	18.7%
Crowned Duiker	0	2	2	1.5%
Red-flanked Duiker	1	7	8	5.0%
Small Ungulates	**4**	**44**	**48**	**30.2%**
Baboon	12	0	12	7.5%
Red Patas Monkey	30	7	37	23.1%
Green Monkey	9	6	15	9.4%
Mona Monkey	0	2	2	1.5%
Primates	**51**	**15**	**66**	**41.5%**
TOTAL	**72**	**84**	**156**	**98.2%**

Waterbuck is the dominant ungulate found in the Dwija Arm area while Hartebeest, the most common ungulate seen in Mole NP was seen only twice. This was partially due to the fact that we were sampling habitat close to water, which is the preferred habitat for Waterbuck. However, data from other areas surveyed indicates that hartebeest is either preferred by hunters or are more susceptible to over-hunting and is rare in all areas we surveyed other than Mole NP (Table 3). Warthogs were observed in good numbers due to the many iron-pan flats found in the areas surveyed, where they were easy to see at some distance. Primates made up a large proportion of the animals observed but this was biased by one observation of a single group of 30 patas monkeys. Primates do appear to survive reasonably well under heavy hunting pressure, as indicated in Table 3.

Population estimates were derived from this data. These density estimates are in effect a index of abundance that reflects differences in the sightability of different wildlife species and differences in their sightability in different habitat types. An analysis of strip census data (Jamieson 1972) indicates that there is no important differences between the strip widths found at Mole and those found in the Dwija Arm area. A strip width of 40 m was used for bushbuck, Crowned Duiker and Red-flanked Duiker; a width of 60m for Oribi,

warthog and primates and a width of 80m for the large ungulates. Population estimates based on these data are presented in Table 2.

Table 2. Wildlife Population Estimates for the Dwija Arm area.

STUDY AREA	TRANSECT LENGTH	Animals/Mi^2 L. Ungulates	Animals/Mi^2 S. Ungulates	Animals/Mi^2 Primates	TOTAL /Mi^2
1. Total Count Area	2.6 mi^2	2.2	11.0	10.0	23.4
2. Camp South	62 mi.	7.5	4.2	4.2	15.9
3. Camp north	39 mi.	1.5	2.0	0	3.5
4, 5, 6. North Shore	77 mi.	4.2	2.0	10.0	16.2
7. Binansipo	15 mi.	0	0	0	0
8. Oboyang	31 mi.	1.7	5.0	7.5	14.2
	224 mi				
Weighed Means (all surveys)	**-**	**4.7**	**4.0**	**8.0**	**16.7**
Mole NP (riverine areas close to water)		60.2	17.6	43.0	120.8

Table 3 below provides similar data for other reserves and areas outside reserves across the Guinea zone. Population levels of ungulates in the Dwija Arm were substantially below those found in Mole N.P., but still well above the levels in other areas we looked at where uncontrolled hunting occurs. Limited access seems to have maintained wildlife population levels in the Dwija Arm at higher levels than those found in other unprotected areas. Primates seem to survive better than ungulates in all unprotected areas.

Table 3. Wildlife Population densities (animal per square mile) in four areas of Ghana. (from Jamieson, 1972a).

Species Group	Mole National Park	Dwija Arm, Digya N. Park	Gbele Game Res.	Gambaga Scarp/Red Volta area
Large Ungulates	**31.7**	**4.7**	**.4**	**.5**
Small Ungulates	**15.0**	**4.0**	**4.0**	**1.3**
Primates	**24.9**	**8.0**	**9.6**	**11.0**
TOTAL	**71.6**	**16.8**	**14.0**	**12.8**

WILDLIFE DISTRIBUTION

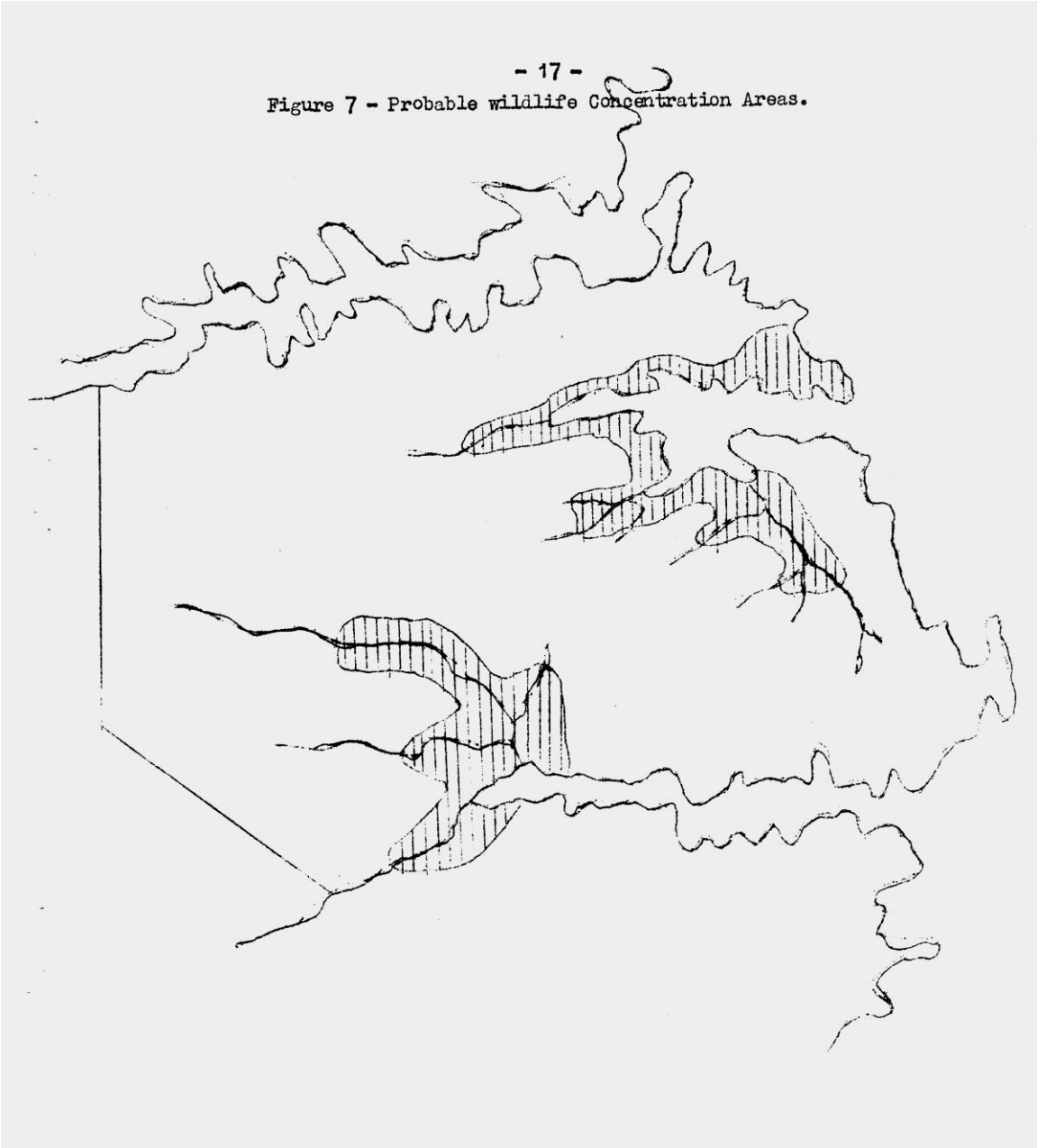
We found that wildlife densities dropped off very quickly as one moved away from water. Table 4 indicates the relationship between the number of animals observed and the distance of the sightings from water. This drop is much more severe than we found in Mole NP where even the driest areas supported densities that were 40-60% of those found close to water. This difference may be due to several factors.

1. The severity and length of the dry season in the year in which the surveys were undertaken.
2. Since wildlife populations were well below carrying capacity, the remaining wildlife may have concentrated in the best habitat, i.e. near water.
3. The poor soils and subsequent poor forage quality in this park may mean that the higher elevations are very poor wildlife habitat.

Table 4. Wildlife Population in relation to distance from water.

	Distance from water 1km/.6 mi.	Distance from water 1km/.6 mi.	Distance from water 1km/.6 mi.	Distance from water 1km/.6 mi.	Distance from water 1km/.6 mi.
No. of observ.	66	12	7	2	0
Km of transect	10	20	10	5	2
No.s./km	6.66	.60	.70	.40	0

Figure 7 indicates the potential dry season concentration areas in the east portion of the park. The drawdown zone, which would also attract wildlife is not indicated.



SPECIFIC SPECIES INFORMATION

Jamieson 1972a provides an overview of the distribution of elephant, hippo and leopard across Ghana in that era. Elephants did occur in other parts of the park but we not observed any elephants or sign during the survey in the Dwija Arm. We did find tracks of hippo on one occasion (Photo 5). We found sign and had one close encounter with a leopard. No evidence of lion was found. And we did not record any observations of manatee.

DISCUSSION

The Dwija Arm area could provide a total recreational experience for visitors that would involve wildlife viewing, (by vehicle, foot or small boat), swimming and exploring in a exceptionally scenic area. These options are limited by low wildlife numbers in the area at present, the unsightly presence of tree snags throughout the arm, and potential problems with major draw-downs on the level of reservoir. Extensive visitor use will not occur for some time as all of these are long term and difficult issues.

POTENTIAL FOR GAME VIEWING

The extended dry season and lack of water in the park may result in major concentrations of wildlife in those areas with water and forage in the dry season, as indicated in Figure 7. The green vegetation in the draw-down zone may also provide forage and water. This may mean that wildlife viewing may be possible using a small boat traveling along the shoreline. Wildlife could be observed with a minimum of disturbance, under exceptional photographic conditions with the water and green grass along the shore, and in some locations, with the Togo Hills in the background. Observations could be made with minimal risk to visitors.

OTHER ATTRACTIONS

After an early morning of wildlife viewing, visitors could then spend the remainder of the day fishing, swimming or exploring the many inlets along the edge of the park to make their day a very complete experience. All of these factors combined would provide an experience unique in Ghana and uncommon among the other national parks in West Africa.

Fishing Opportunities: At present the Dwija Arm supports very high numbers of fish despite intense net fishing pressure by local fishing people. Several fish in the 10-20 lb class were observed and one fish was seen that would have weighed 100 lbs. With protection the Dwija Arm can be expected to provide excellent sport fishing. There are some 20 odd fish species in the reservoir and Nile Perch is a well-know sports fish in other parts of Africa. Sports fishing might provide an early attraction that would bring visitors to the area while wildlife populations in the park are recovering. It should be

noted however, that under present National Park policy, no fishing is allowed. To develop this option would require a change of policy.

Swimming: Along the shores of the reservoir there are several small rocky islands and streches of smooth rock shoreline that provide excellent swimming areas, something that is lacking throughout most of Ghana. In these areas the water clarity is quite good and makes for good swimming and sun-bathing. Balhatziasis should not be a large problem. The present population of potentially infected fishing peoples is light and may be removed at some point. The preferred habitat for the snails *Bulinus truncata and B. forskali,* which are the disease vectors, are generally found along muddy and weeded shorelines and dot seem to occur on rocky headlands. The authors searched for snails in several areas and did not find any evidence. (*We also tested the waters, using our bodies for bait, and found no Balhatziasis.)* Pierce 1971 in his work on the Reservoir found that clearing of vegetation and spraying with fenac and dineac reduced the incidence of snails by 99%. This would provide a means to ensure the safety of swimming in these areas but would be contrary to a decision made at the first annual Senior Parks staff meeting, in 1971, that would disallow the use of persistent pesticides in National Parks in Ghana.

RECOMMENDATIONS

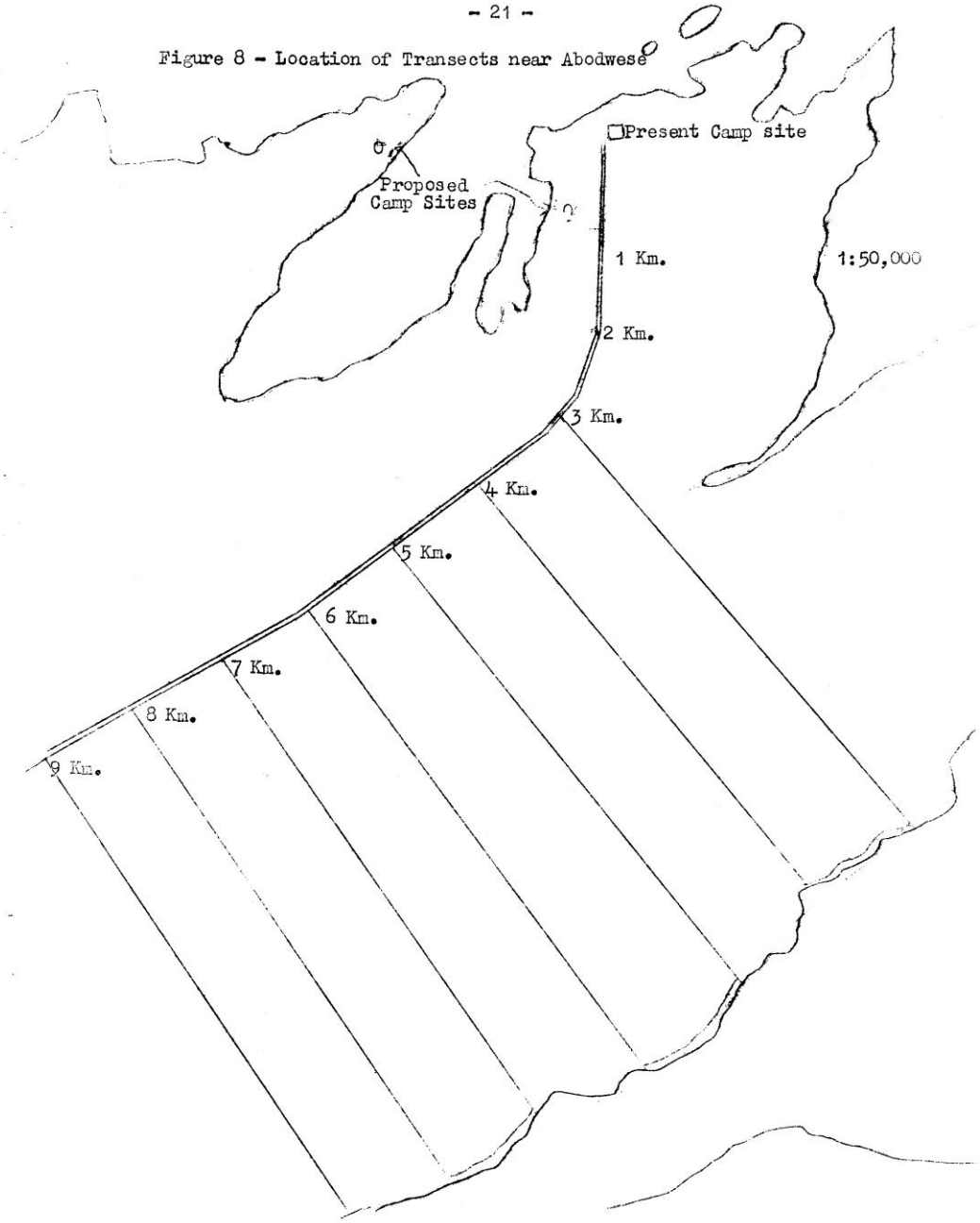
Short term efforts should be concentrated on:

- The resettlement of present fishing villages in the park
- The development of a park headquarters outside the west boundary of the park
- The development of long range plans for the park.

Specific effort in the longer term should focus on:

1. **The Protection of Scenic Values on Obodwese.** The Obodwese point on which our camp was situated and which the Dwija access road runs to; is the most scenically interesting area in the Dwija Arm area. It will be the focal point for the park. However, it is small, unique and supports fragile vegetation. It should be given special protection. The department camp for the Dwija Arm is located on the point. It should be moved to the next point northwest along the Dwija Arm.
2. **The protection of wildlife on the Dwija Arm.** Since the Dwija Arm is likely to be the focus of future development in the park, anti-poaching efforts should be initiated in the area as soon as possible. This will allow wildlife populations the time required to recover to levels that will support wildlife viewing.
3. **Monitoring wildlife numbers.** It is important to monitor the increase in wildlife numbers over time. This could be accomplished using the techniques applied in this survey and repeating the transects (Figure 8) on a once in 3-5 year basis, using the staff in the anti-poaching camp. Assuming that no significant changes in habitat or sightability occur, this will provide a simple, rough but effective index of changes in wildlife populations.

Figure 8 - Location of Transects near Abodwese



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Jamieson, 1972a. Final Report-Wildlife Resource Survey Team –1970-72. Unpul. Report, Dep't of Game and Wildlife, Ghana.

Child, C. and C. Manu, 1970. A preliminary report on the Volta Game Reserve. Unpul. Report, Dep't of Game and Wildlife, Ghana.

A FAUNAL SURVEY OF THE NTOABOMA AREA.

Surveys were also completed in the Ntoaboma area on the south east edge of the Park, looking at a proposed park boundary change in that area. This work is not included here. Ntoaboma is located just north of the arm of the reservoir that constitutes part of the south boundary of the Park.

AFTERWARD

Digya has not fared well in the intervening years, however major options still exist to develop the area to the benefit of wildlife, parks values and the people living in and adjacent to the area. In 2007, the major issues remain much as they were in 1972, however there are indications at least some of the issues may be dealt with in the near future.

Some more recent literature on the area and available by the web are indicated below.

Brasheres, J. et al. Fish and bushmeat study, FAO, for Ghana.

Twumai, Y., T. Coleman and A. Manu. 199x. Biodiversity management using remotely sensed data and GIS technologies: The case study of Digya National Park, Ghana. Alabama A&M University, Normal, AL 35762

Kumordzi, B. B, W. Oduro and Abena Owusu-Sekyere, 200x. Elephant surveys in Digya NP, based on dung counts.

Bob Jamieson and Ahmed Nuhu on the Volta Reservoir, 1971. Jamieson at 125 lbs after 3 weeks of dysentery…..