

SOUTH RUPUNUNI CONSERVATION SOCIETY

Ongoing Protection of Red Siskins in the South Rupununi, Guyana

Final Report

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A community-based conservation approach to endangered Red Siskins through ranger training, bird-banding, and education outreach.

The South Rupununi Conservation Society¹

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SECTION I

SUMMARY

The Red Siskin (*Sporagra cucullata*) is an endangered bird with an important population recently discovered in the South Rupununi, Guyana. In this project, the SRCS has continued to monitor and protect Red Siskin populations to better understand their populations and behaviours, and to improve local understanding of and engagement in broader environmental and conservation issues. In the course of the project, thirty individuals of predominantly Wapishana and Makushi Amerindian heritage were trained over two 10-day workshops and two 3-day informal skills refresher sessions, and undertook regular Red Siskin banding field surveys for the two entire years of the project. Over 150 Red Siskins were captured, measured, banded, and released, with data reflecting preliminary positive results for ongoing Important Bird Area (IBA) verification and providing baseline data for further Red Siskin research and conservation. Increased involvement of youth and female individuals on field surveys as the project progressed represents a positive impact of Red Siskin research on local conservation awareness and commitment, laying crucial groundwork for more comprehensive and long-term conservation engagements. Lastly, bird identification field trips and production of a series of posters for students at local village schools, provided education outreach in important birds and relevant conservation issues. Red Siskin research allows for the SRCS to empower local communities with necessary skills, resources, and opportunities in grassroots conservation activities, and to give local voice in wider conservation policy discussions.

INTRODUCTION

The Red Siskin is an internationally endangered bird due to protracted historical trapping, with present populations in Venezuela and Guyana. The SRCS was founded following the Smithsonian Institution's recent discovery of the Red Siskin in the South Rupununi (Robbins et al., 2003), becoming Red Siskin stewards and conservationists, and undertaking an initial CLP-funded Red Siskin research project determining its local range in 2006. This follow-up project continues protecting Red Siskin populations and environments through banding research and education outreach. It involved the training of community members in basic scientific and ornithological methods to conduct long-term Red Siskin baseline research, and increased communities' knowledge and engagement with local conservation issues through regular school visits, newsletters, and a poster campaign.

The Red Siskin's range in Guyana is spread across six village titles – the predominantly Wapishana villages of Katoonarib, Potarinau, Rupunau, Sand Creek, Sawariwau, and the Makushi-Wapishana village of Shulinab. Two local ranches, Dadanawa and Saddle Mountain, were also involved. This project therefore sought to build a grassroots conservation team engaging in Red Siskin research and outreach. Volunteers requested from village communities and ranches were trained as SRCS Rangers, conducting a two-year banding survey of Red Siskin populations. Initial Rangers trained were generally older male household heads who gained knowledge of birds and conservation, becoming respected proponents of responsible environmental practice in their villages. Cadet Rangers that began joining the team after the initial training course were generally younger, with increased womens' participation. Many Cadets were recent graduates and school leavers, with several being current school teachers at village Primary Schools who assisted Rangers greatly in their bird-watching tutorials and field trips for local students. At least three Cadets have continued on to pursue tertiary education immediately following their involvement in the project. Locally-led research has also led to the team to be recognized as frequent and friendly presence at sites to monitor and deter trapping and burning, the main threats to Red Siskins and other local wildlife. Rangers led environmental education outreach school visits for children, and provided informal, hands-on instruction for youth on field visits, increasing environmental awareness and conservation discourse at the grassroots level. As the flagship endangered species of the predominantly-Wapishana South Rupununi, the Red Siskin provides a focal point for the continuous transmission of Wapishana traditional knowledge and skills through the lens of bird conservation, and opportunities for school leavers to continue broadening their education and skills through local research activities.

From a conservation policy perspective, research findings provide baseline data to assist the South Central and Deep South District Toshao Council (DTC), Environmental Protection Agency Guyana (EPA-G), Ministry of Indigenous People's Affairs (MoIPA), and the Protected Areas Commission (PAC) presiding over the recently demarcated Kanuku Mountains Protected Area (KMPA) in addressing conservation issues at the regional and national levels. Data collected will further contribute to efforts to establish the South Rupununi as one of ten proposed Important Bird Areas (IBA) in Guyana in cooperation with BirdLife International, and genetic analysis comparing Venezuelan and Guyanese Red Siskin populations by the Smithsonian Institution. These steps are designed to improve legal protection of Red Siskins, eco-tourism opportunities for local Amerindian communities, and a deeper grassroots understanding and appreciation of bird populations and behaviour in the South Rupununi.

PROJECT MEMBERS

The SRCS Red Siskin Unit includes (1) the SRCS Executive Committee, specialists, and co-ordinators, leading (2) SRCS Rangers in conducting Red Siskin research. Since February 2015, Rangers have been joined and assisted by various younger (3) Cadet Rangers, who are trained by Rangers themselves in necessary research and field skills.

TEAM MEMBER	RESIDENCE	ROLE	BACKGROUND
Leroy Ignacio	Shulinab Village	Team Leader	SRCS Vice-President; Rupununi Trails senior guide (10+ years); St. Ignatius Secondary School teacher (1999-2000).
Erin Earl	Dadanawa Ranch	Mapping Specialist	B.Sc. Natural Sciences, Cambridge University (2010), M.Sc. Geology Cambridge University (2011), SRCS Secretary, Shulinab Primary School teacher (2005-2006).
Justin de Freitas	Dadanawa Ranch	Logistics	Rupununi Trails senior guide (10+ years), CLP Red Siskin Project Manager (2004-2005).
Kayla de Freitas	Dadanawa Ranch	Logistics	B.A. Cultural Anthropology, University of British Columbia (2010), M.Sc. Anthropology, Environment and Development (2018), Conservation International Guyana project officer and consultant (2011 – present), SRCS Treasurer.
Asaph Wilson	Shulinab Village	Bird Specialist	Rupununi Trails senior guide (10+ years), CLP Red Siskin researcher (2004-2005).

Nicholas Fredericks	Shulinab Village	Community Representative	SRCS President, South Central Peoples Development Agency (SCPDA) project co-ordinator (2004 - present), Shulinab Village Toshao (2015 - present), Rupununi Trails senior guide (10+ years).
Chung Liu	Dadanawa Ranch	Project Manager	B.A. Cultural Anthropology, University of British Columbia (2010), M.Sc. Anthropology, Environment and Development, University College London (2013), Rupununi Trails guide (2 years).
Perpetua Adolph	Shulinab Village	Ranger	Farmer.
Everton Andrews	Sand Creek Village	Ranger	Farmer.
Leon Baird	Dadanawa Ranch	Ranger	Dadanawa Ranch Vaquero, Rupununi Trails senior guide (10+ years), CLP Red Siskin researcher (2004 - 2005).
Nicholas Cyril	Katoonarib Village	Ranger	Farmer; CLP Red Siskin researcher (2004 - 2005).
Samuel Cyril	Katoonarib Village	Ranger	Farmer.
Eion Gray	Shulinab Village	Ranger	Driver and tour guide.
Derek John	Sand Creek Village	Ranger	Farmer.
Abraham Ignace	Shulinab Village	Ranger	Farmer, WWF RAP guide (2013).

Maxi Ignace	Shulinab Village	Ranger	Farmer, Iwokrama Rainforest Ranger (2000), WWF RAP guide (2013).
Harold Isaacs (Deceased)	Potarinau Village	Ranger	Farmer, SCPDA Monitoring Team monitor (2010 - 2015).
Angelbert Johnny	Sawariwau Village	Ranger	Farmer, SCPDA Monitoring Team monitor (2004 - present).
Frank Johnny	Sawariwau Village	Ranger	Farmer.
Henry Joseph	Rupunau Village	Ranger	Farmer, Rupunau Village head vaquero (2012 - present).
Richard Peters	Dadanawa Ranch	Ranger	Dadanawa Ranch vaquero, Rupununi Trails guide (2012 - present.)
Jane Wilson	Rupunau Village	Ranger	Farmer.
Jessline Alexander	Potarinau Village	Cadet Ranger	Aishalton Secondary School diploma (2013).
Terrence Augustin	Shulinab Village	Cadet Ranger	Farmer.
Vidia Caitano	Rupunau Village	Cadet Ranger	Aishalton Secondary School diploma (2015), accepted into Carnegie School of Home Economics, Georgetown (2016).

Maya de Freitas	Rupunau Village	Cadet Ranger	Aishalton Secondary School diploma (2015), Diploma in Portuguese language (2017), Co-Manager at Karanambu Ranch (2017 - present).
Nikita Edwards	Sand Creek Village	Cadet Ranger	Sand Creek Secondary School teacher.
Louis Eusebio	Shulinab Village	Cadet Ranger	Shulinab Village Primary School teacher.
Tracy Eusebio	Shulinab Village	Cadet Ranger	Shulinab Village Nursery teacher.
Leandrew Fredericks	Shulinab Village	Cadet Ranger	Tourism Graduate, Bina Hill Institute (2018)
Judah Kenyon	Saddle Mountain Ranch	Cadet Ranger	Saddle Mountain vaquero. Data Manager at the Sustainable Wildlife Programme Guyana (2018-present)
Dean Jackman	Sand Creek Village	Cadet Ranger	Farmer.
Ponila Joseph	Rupunau Village	Cadet Ranger	Farmer. Currently employed in Georgetown.
John Paulin	Sawariwau Village	Cadet Ranger	Farmer.
Kim Spencer	Katoonarib Village	Cadet Ranger	Aishalton Secondary School diploma (2015), Sand Creek Secondary School teacher (March 2016 - Aug 2017), attending Teacher Training College (2017 - present).

Paul St. Hill	Sand Creek Village	Cadet Ranger	Farmer.
Flavian Thomas	Rupunau Village	Cadet Ranger	Farmer.
Nathanael Wilson	Katoonarib Village	Cadet Ranger	Aishalton Secondary School diploma (2015).

Note: The majority of the initial fifteen Rangers are Wapishana and Makushi farmers and male household heads, between the ages of 30-40; this was primarily due to traditional gender roles and the difficulty of women volunteering for fieldwork due to community social norms (only two of the fifteen Rangers are female).

After a first year of successful operations, new volunteers were mainly youths between the ages of 16-25; many being recent Secondary School leavers, graduates, and village schoolteachers at all (Nursery, Primary, Secondary) levels, with an improved rate of female participation (seven of the sixteen Cadets are female). They worked with Rangers on field visits, who taught them the fundamental research skills and safe bird handling.

Following the fieldwork phase of the project, most Rangers have remained active in many ongoing roles including as senior guides, vaqueros, and community monitors. Some Rangers have new responsibilities, including Nicholas Cyril, who was recently elected Toshao of Katoonarib Village. Several Cadet Rangers continued into further education and conservation work, includes Kim Spencer, completing teacher training at Cyril Potter College, Georgetown; Maya de Freitas, current co-manager of Karanambu Ranch; Leandrew Fredericks, recent graduate in tourism from the Bina Hill Institute, Judah Kenyon, current data manager with the Sustainable Wildlife Programme Guyana, and many more.

SECTION II

AIM AND OBJECTIVES

The main aim of this project was to establish mechanisms to secure the medium to long term protection of endangered Red Siskins in the South Rupununi. This was to be achieved by reducing habitat destruction and trapping through a process of education, monitoring and enforcement.

Increased knowledge of Red Siskin range, habitats and behaviours was gained through regular bird watching and Red Siskin banding field trips. Local awareness of the Red Siskin and support for Red Siskin conservation increased due to reports by Rangers at monthly village meetings, and quarterly District Toshao Council (DTC) meetings. Through regular Red Siskin field surveys, primary school bird-watching trips, village council correspondence, and newsletters, the SRCS aimed to spark and maintain local interest in Red Siskin and biodiversity conservation, focusing on and enjoying especial success among children and young adults.

Although part of the original project objectives, the SRCS elected not to adopt an enforcement approach, and left out community police training for Rangers because they were reluctant to participate (see Pg.32 for further detail).

Our final objective was to establish the South Rupununi as an Important Bird Area. The South Rupununi remains a proposed IBA, and the team has discussed the IBA process at length and worked primarily with Veronica Anadon. Unfortunately, this partnership did not go further when Veronica left IBA. However, the Siskin area remains important and the District Council (now known as the South Rupununi District Council) supports the proposed IBA status, and internally recognises it to be an important bird area.

METHODOLOGY

TRAINING WORKSHOPS

An initial workshop was conducted in March 2014, providing 15 initial Rangers, who were selected by participating village councils, with the requisite research methods for regular Red Siskin field surveys conducted during the project fieldwork phase. A subsequent workshop was conducted in February 2015 to provide 25 participants, including 12 of the initial 15 Rangers, with training in photography, interpretive guiding, eco-tourism, and first aid skills required for education outreach and safe guidance of any guests. Trainers for the first workshop included Dr. Evi Paemelaere of Panthera, a long-time SRCS collaborator, and senior SRCS members with significant research and mapping experience including Justin de Freitas, Leroy Ignacio, Asaph Wilson, and Erin Earl. Trainers for the second workshop included Mike Martin of Rupununi Learners, Yupukari Village, North Rupununi, and De Vaughn Lewis and Melissa Lewis of the Guyana Red Cross Society, Georgetown. In addition to these two training workshops, two informal skills refresher sessions were also held, firstly with a visiting team led by Dr. Alex Jahn, Universidade Estadual Paulista-Rio Claro, in May 2015, and then with Dr. Brian O'Shea, North Carolina Museum of Sciences, and then-PhD candidate Dr. Maggie MacPherson, Tulane University, in October 2015.

FIELD SURVEY METHODS

Field visits were generally conducted twice per month, with each field visit involving one day to travel to the research site and set up camp, and two days of mist-net operations. Up to eight mist-nets were set up each day at areas where birds would frequent, with GPS locations and hours of operation recorded for each net. All Red Siskins that were captured were measured for dimensions of culmen, gape, tarsus, wing length, total wingspan, total length, and for weight. Each bird was then banded with a coloured, numbered band with band colour based on capture site and a unique number in the case of recapture, then released. Rangers were also trained in Red Siskin blood sampling techniques, in anticipation of then-pending Smithsonian Institution research approval for a genetic comparison between Venezuelan and Guyanese Red Siskins. Twenty-seven samples of Red Siskin blood were ultimately collected for the Smithsonian Institution. Field data collected for each trip also include relevant map coordinates, general observations on terrain and weather, evidence of fire and bird-trapping, any evidence of other notable species in the area, and a full bird species sighted list.

OUTREACH METHODS

Local communities were kept updated of SRCS activities through regular written correspondence with village councils, regular updates by Rangers at monthly village public meetings, publication of a monthly newsletter, periodic detailed presentations at village public meetings, and full status update presentations at quarterly DTC meetings. Interested individuals from communities were invited to participate on field visits, and if they continued, came on the team as Cadet Rangers.

In September 2015, Rangers began bird-watching tutorials and field trips for local village Primary School students. This involves Rangers giving a brief introduction to biodiversity and bird observation, a tutorial on binocular and bird book use and maintenance, and a field trip through the village to compile a list of bird sightings. In 2017, a series of posters were completed for dissemination in local schools. Each poster contains information on one local important bird, including appearance, Wapishiana name, range, habits and conservation status.

OUTPUTS AND RESULTS

TRAINING WORKSHOPS

15 rangers were trained during an initial two-week course held at Dadanawa Ranch in March 2014, covering mist-net operations, safe bird handling, measurement, banding, and blood sampling; binoculars and bird identification, GPS use and mapping; and camera trapping. A subsequent two-week course was held at Shulinab Village in February 2015, and was attended by 25 participants, including 12 of the 15 rangers from the first course, covering photography, tour guiding, guest hospitality, and first aid and CPR courtesy of the Guyana Red Cross Society. At the conclusion of the project, the SRCS Red Siskin Unit includes some 31 Rangers and Cadet Rangers. As the project has progressed the average age of participants has decreased, and female participation has increased.

RED SISKIN BANDING

Red Siskins were captured by mist-net, measured for weight and dimensions, and banded with coloured, numbered bands before release, with colour denoting each different banding site. Field visits were conducted once every 2-3 weeks. A total of 158 birds were banded over 37 field visits conducted across 12 Siskin sites (See Table 2.1 for summary data). Most Siskins were captured during the annual dry season between October and April each year, although they remained regularly spotted around the same sites during the rainy season.



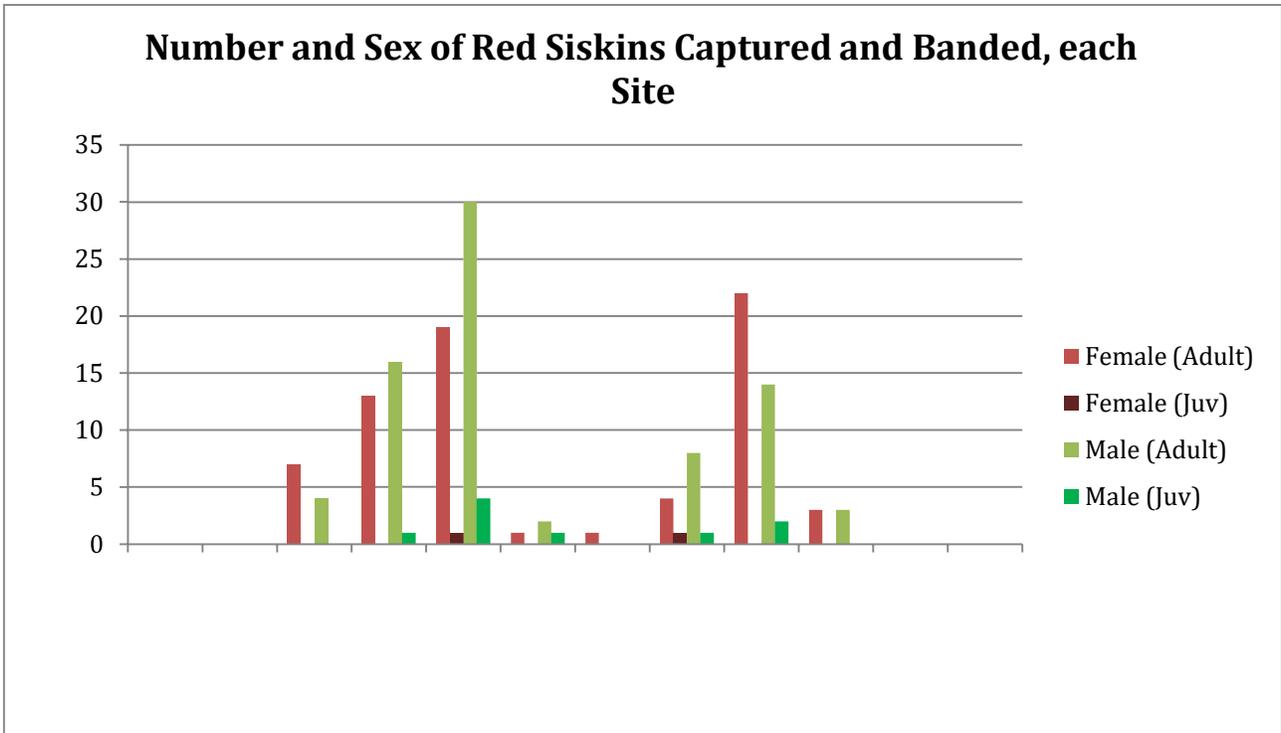
Fig 2.1: Female (left) and male Red Siskins captured by mist net, banded, and released



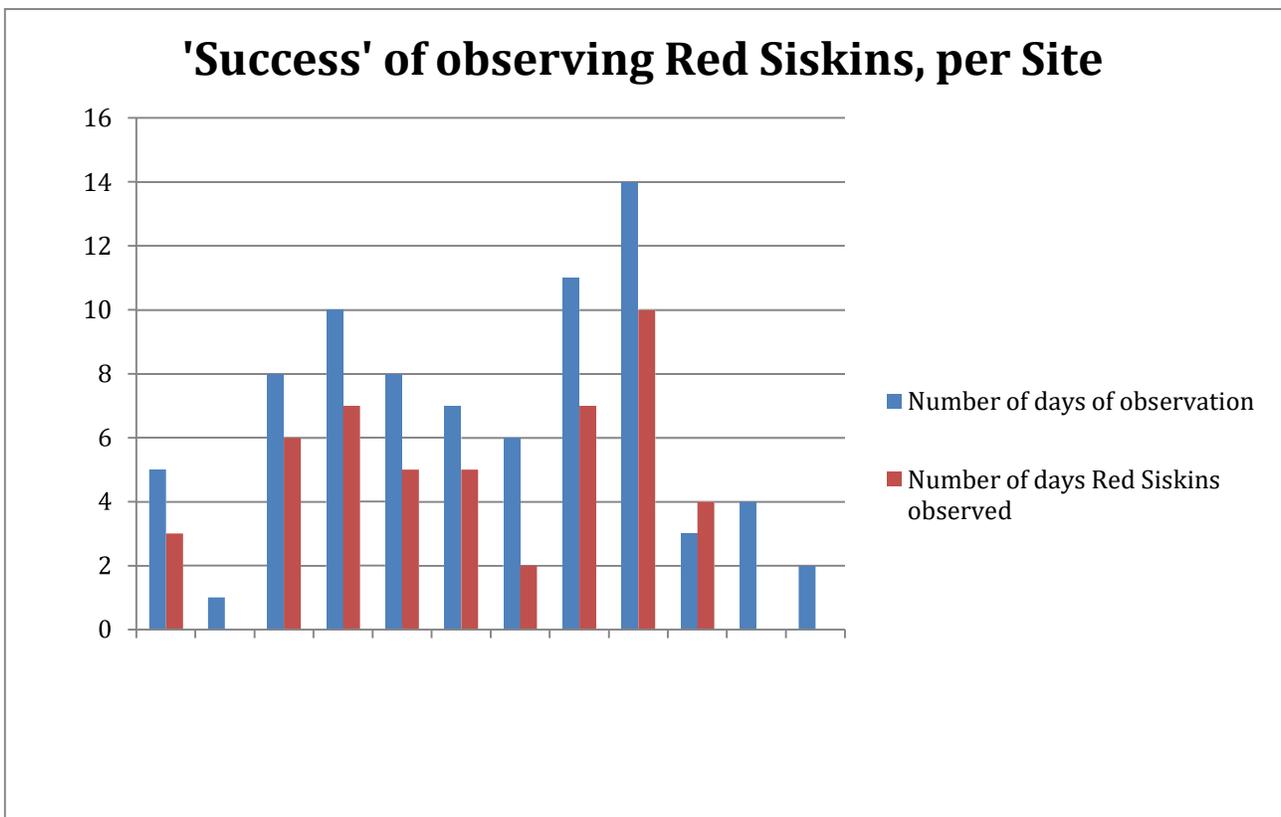
Fig 2.2: Rangers erecting mist nets at a Red Siskin drinking site

Location	Colour of Band	No. of days of observation	No. of days Red Siskins observed	Total no. of Red Siskins Observed	CAPTURES: Female		CAPTURES: Male		TOTAL CAPTURES
					Adult	Juvenile	Adult	Juvenile	
	N/A	5	3	61	0	0	0	0	0
	N/A	1	0	0	0	0	0	0	0
	Purple - pink	8	6	62	7	0	4	0	11
	Green - brown	10	7	96	13	0	16	1	30
	Green - brown	8	5	70	19	1	30	4	54
	Green	7	5	90	1	0	2	1	4
	Yellow	6	2	54	1	0	0	0	1
	Blue	11	7	132	4	1	8	1	14
	Red - White	14	10	275	22	0	14	2	38
	Orange	3	4	26	3	0	3	0	6
	N/A	4	0	0	0	0	0	0	0
	N/A	2	0	0	0	0	0	0	0
Grand Total	N/A	79	49	866	70	2	76	9	158

Table 2.1: Numbers, and sex of Red Siskins observed and banded at each site, throughout the project duration. Location has been removed due to sensitivity of the information.



Graph 2.1: Number and sex of Red Siskins captured and banded at each site, over the project duration. Location removed due to sensitivity of information.



Graph 2.2: Number of days spent in field observation, compared with the number of days Red Siskins were actually seen at each site over the project duration. Location removed due to sensitivity of information.

RE-SIGHTINGS AND RE-CAPTURES

Twenty banded individuals were re-sighted. The colour of the bands indicated that the majority of these were re-sighted near the location that they were initially banded. Two observations confirmed movement of Red Siskins between sites.

Although nine birds were recaptured, four of these were recaptured on the same day as they were initially banded. All of these birds were recaptured at the same location as they were initially banded, up to nine months after their initial banding date. The dataset is too small to draw any reliable conclusions from their measured dimensions about relative rates of growth.

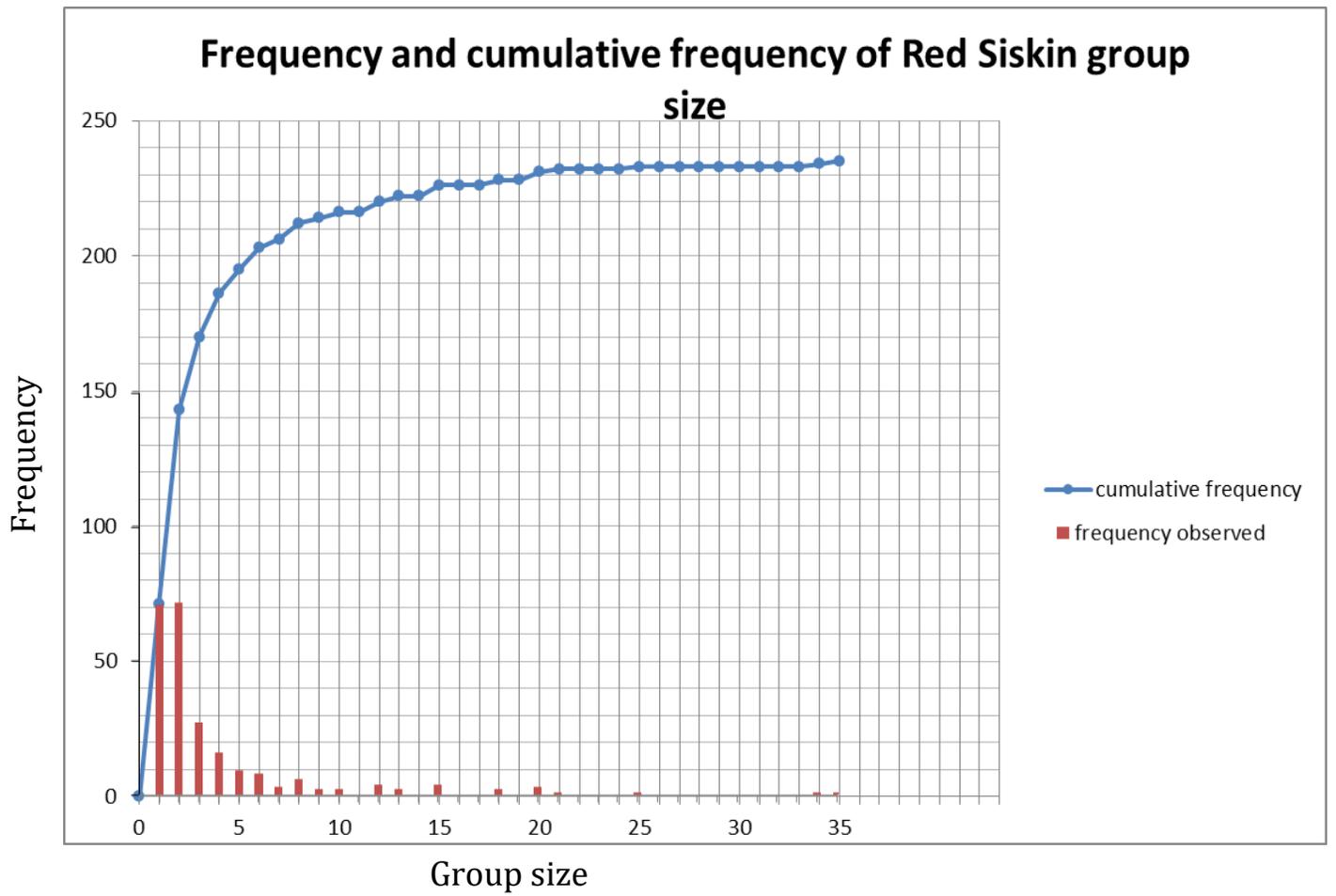
The low frequency of re-sightings and recaptures would suggest that this period of banding has only sampled a small proportion of Red Siskins in the area.

GROUP SIZE AND CHARACTERISTICS

Red Siskins were most commonly observed as lone males, or in male-female pairs. Group sizes were similar throughout the year (see Table 2.2 and Graph 2.3). Small mixed flocks of 3 or 4 siskins were also frequently observed, and very occasionally large groups of up to 20 were observed feeding together. (Graph 2.3) Groups of 12 to 35 individuals were found roosting together at night, or travelling together in the late evening or early morning, presumably from their roosting sites.

	group size		
Month	Mode	Max	Min
Jan	2	15	1
Feb	2	20	1
Mar	2	12	1
Apr	1	20	1
May	2	15	1
Jun	-	4	2
July	-	-	-
Aug	1	2	1
Sep	1	3	1
Oct	1	25	1
Nov	1	35	1
Dec	1	8	1

Table 2.2: Maximum, minimum and mode of group size, per month over the project duration.



Graph 2.3: Frequency of Red Siskin group size

LOCATION OF SISKINS

The Siskin banding sites can be generalised as belonging to one of two broad habitat types:

- a) Ciambe scrub with scattered boulders at the base of more densely forested hills where there are mountain springs. At these locations, mist nests can be successfully erected over drinking sites. (see Fig 2.2)



Fig 2.3: Examples of Habitat Type A. Note the large boulders that have developed in situ or near in situ to their mountain source. Large areas of exposed sheet rock are also common at these locations. These sites are all at the bush-savannah boundary, where the Ciambe scrub becomes thicker.

- b) Low-lying farmland (both active and deserted) near the base of forested hills. These sites are further into the bush (up to two kilometers in) than sites of Habitat Type A. Here, Siskins are commonly observed feeding on secondary growth plants and drinking at small streams or springs.



Fig 2.4: Example of Habitat Type B. Here, secondary growth forest (left side of the photograph) encroaches onto active farmland. At this site, Siskins were caught in nets stretched over small pools in the ditch in the centre of the photo, and in nets stretched in the farmland.

DRINKING

Red Siskins were most consistently observed and captured at sites where they had access to drinking water in an otherwise dry environment. For this reason, expeditions were generally most successful during dry season (approx. September – March)

Red Siskins were observed drinking water at areas with varying degrees of canopy cover, from relatively open mountain springs where there are low trees for perching, to more shaded springs at and shaded pools

*Fig 2.5 Typical drinking site,,
November 2015. Rocks are
Paeleoproterozoicgranitoid.*



*Fig 2.6 Two male Red
Siskins, including one with a
blue band on the right foot,
drinking water from a
spring, December 2015.*



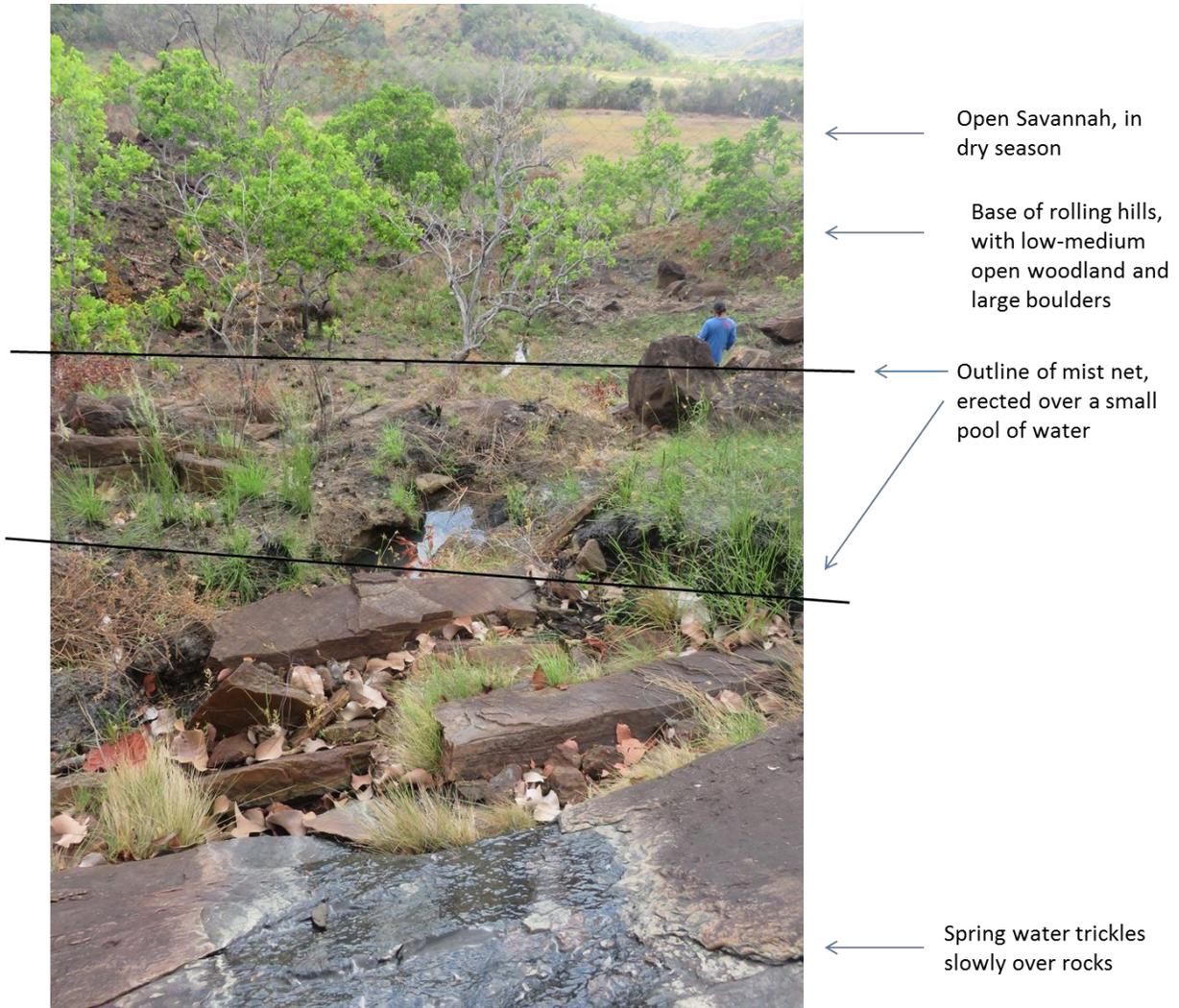


Fig 2.7: Mist net set up over a small spring with pool.

FEEDING

SRCS Rangers observed Red Siskins feeding on a variety of seeds and fruits.

Siskins were, most commonly observed eating the fresh fruit or dry seeds of the Ciambe tree, *Curatella Americana*, (Fig 2.8). At each site visit, the presence or absence of ciambe flowers, fruit and seeds were recorded. These were found to be present at all sites year round, with a clear peak from October to February (dry season).



Fig 2.8: (a) Male Red Siskins perching and eating in a Ciambe tree (November 2015). (b) and (c): Seeds of the Ciambe tree.

Red Siskins were also recorded eating from various vines, shrubs and grasses. They were also observed eating Bishawuda fruit (*Trema micrantha*), seeds of an unknown wild vine, Konani (*Clibadium surinamense*), wild sun flower (*Wedelia sp.*), Guyana comb (*Combretum fruticosum (Loefl.) Stuntz*), possibly bird vine (Wapishana: Pii Pii Dik; *sp. unknown*), and strangler fig (*Ficus sp.*).



Fig 2.9 Photos of some other secondary sources of food for the Siskin.

ROOSTING

Red Siskins were observed roosting in groups of approximately fifteen to thirty five, and commonly along with Euphonias (*Euphonia violacea*, *E. finschi*), in a variety of tree species and heights, some of which were very exposed to wind and rain.

At one field site, twenty to thirty Red Siskins were found roosting with Euphonias in a 20-25 foot tall tree (unknown species). The tree was isolated and exposed on a shallow, boulder-strewn hillside about twenty feet above the savannah.

At one site, twenty Red Siskins were found roosting with Finches Euphonia in an isolated leafy savannah Sishua tree (*Roupala montana Aubl.*) during dry season (Fig 2.10). At time of observation, they were exposed to a heavy breeze.

Near another site, Red Siskins were observed roosting in a small cluster of low trees (unknown species) growing out of a rocky outcrop.

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Fig 2.10 Twenty Red Siskins roosting with Finsch's Euphonia in a savannah Sishua tree, November 2014

NESTING

As with roosting, nesting occurs in trees of variable species and height (6 to >20 feet). Red Siskin nests with eggs were found in Ciambe trees (6 feet above the ground). Red Siskins were also found nesting in Parikaran (*Bowdichia virgiliodes Kunth*) trees (12 feet high).

Siskins were seen to build delicate nests of grass and feathers, about 8cm in diameter, with 2-3 eggs per nest. They were not observed to return to an old nest or old nesting site. Eggs were observed in April and early May, towards the end of the dry season. Chicks were heard in early June, just before the start of the rainy season.

In one location at the time of nesting, many males were observed chasing one another in the presence of females, leading the research team to speculate that there might be communal care of the young.

EDUCATIONAL OUTREACH

Beginning in September 2015, Rangers preceded regular field visits with a half-day bird-watching tutorial and field trip for 12-15 students at each of the six village Primary Schools participating in the project, with students taught to properly use and maintain binoculars and illustrated bird guides to spot and identify bird species around the village. Combined with UNDP's SGP funding, SRCS was able to produce a bird book with the top 100 birds of the Southern Rupununi and 7 posters displaying information about SRCS and the 6 proposed IBAs in the Rupununi. Bird books and posters were printed and received by each of the six Primary School, the district Secondary School, and six participating village communities.

NEWSLETTERS

The project was chronicled by monthly newsletters, which provided a photograph- and text-based update of Red Siskin research, as well as descriptions of the research process and various other locally occurring bird species, including Wapishana bird names and traditional ecological knowledge, and species behaviour, range, and notable characteristics. Newsletters provided communities with regular updates on project activities, and educational insight into various conservation and research processes that project members participated in.

CONFERENCES AND PUBLICATIONS

In 2016, the SRCS presented two abstracts at the 4th International Congress on Biodiversity of the Guiana Shield (IBG) held in Georgetown, Guyana regarding this project. The first presentation was on community conservation efforts around the Red Siskin, with the second on traditional ecological knowledge and Wapishana etymologies of bird names.

ACHIEVEMENTS AND IMPACTS

The SRCS has continued to develop our medium and long-term plans for successful continuous Red Siskin monitoring and protection, and further begun to address wider local environment and conservation concerns. The CLP award allowed for a matching 35,000 USD award from the UNDP-administered Global Environment Facility Small Grants Programme Guyana (UNDP-SGP) to jointly support this project, which provided funding for a full-time project manager (Chung Liu at 250 USD/month) in 2014 through 2016, and also contributed significantly to total equipment, training workshop, field visit, and other overhead costs of the project. Reports and several SRCS newsletters are available on the UNDP website. The project also successfully received a 5,000 USD award from the Mohamed bin Zayed Conservation Fund in 2016, which allowed an extension of Red Siskin research activities through 2017.

The project has been successful in training and fielding a team of Rangers in conducting regular Red Siskin research, with banding data resulting in new understandings of Red Siskin movement, and Rangers developing a keen understanding of the bird from observed behaviour. Rangers have become respected for their knowledge of Red Siskins and conservation skills in their village communities, and villages have enjoyed continuous updates on the Red Siskin, resulting in increased positive awareness of the bird and of conservation in general. While stipends are meagre at best, they allow Rangers to receive some remuneration and social recognition for what is often arduous fieldwork. They have contributed to several younger Rangers deciding to pursue further education or employment opportunities, and experience in the project has led to many older Rangers taking more prominent roles in village school education outreach, public presentations, and ornithological field guiding for international researchers. Regular field visits put Rangers in more frequent friendly contact with local trappers and allow them to unobtrusively monitor the ongoing status of wildlife trapping. Through outreach with students, Rangers actively contribute to their village communities as conservationists and educators, and inspire with relevant and real applications for school-taught subjects such as scientific observation, species identification, and descriptive language.

This Red Siskin project has also allowed the SRCS to deepen its partnerships with the Smithsonian Institution-led Red Siskin Initiative, the EPA-G, BirdLife International, and other local, national and international organisations and ornithologists. A detailed description of the SRCS' role in the Smithsonian-led Red Siskin Initiative is available on the Smithsonian Institution's website. Data from this project has also been compiled for BirdLife International's IBA programme in Guyana, to assist the organisation in restarting the programme by beginning with the verification of the proposed South Central Rupununi IBA, one of ten proposed IBAs in Guyana. A subsequent and separate award from the Rufford Foundation in April 2015 involves investigating the potential of local shade-grown Bird-Friendly Coffee® in the South Rupununi, a coffee criteria developed by the Smithsonian Institution based on indigenous shade tree biodiversity, environmental friendly practices, fair trade pricing, and bird habitat conservation. At the local level, this project is an ambitious agroforestry approach to developing sustainable rural income alternatives to gold, timber, and wildlife trade. At an international level, it further develops the relationship between the Smithsonian Institution and the SRCS. A preliminary description of this project is available on the Rufford Foundation website.

SECTION III

CONCLUSION

This project has accomplished or furthered most of the initially proposed objectives.

Red Siskin conservation has been furthered by local involvement in the project, which has led to increased knowledge and interest in the welfare of the Red Siskin. Over the past two years, 30 local volunteers were trained in ornithological research techniques, including capture, measurement and banding of birds, use of GPS and precise and accurate data recording. They also participated in field guide skills training and first aid training. Twice monthly field trips involved more than 60 interested persons from local communities and resulted in the banding of 158 Red Siskins and collection of significant observations on diet, seasonality, nesting behaviour, movement of birds between research sites and familiarity with the song and behaviour of Red Siskins. The birds were found to travel up to 40km over mostly open savannah between research sites.

Local awareness of the Red Siskin has increased due to reports by Rangers at monthly village meetings and quarterly District Toshao Council (DTC) meetings, and especially through SRCS involvement with local schools. Monthly SRCS newsletters have been distributed to all villages and schools. The conservation of Red Siskins is now a source of pride in communities and used as a justification for community management.

A frequent, friendly presence was maintained at Red Siskin research sites, some which are regular bird trapping sites, where Rangers were able to interact with trappers. Four bird trappers have been successfully encouraged to stop trapping through working with the project. We believe there to be no Red Siskin trapping in the South Rupununi at this time, though it must be noted that the SRCS has intervened once when a Red Siskin was reported in a cage in Lethem. After investigation, the SRCS was able to source where the bird was captured and successfully released it.

There was a dramatic increase in youth, female, and schoolteacher participation in the second year of field surveys: 16 young 'Cadet Rangers', seven of whom were women, joined the team. The SRCS repeatedly visited the six Primary and one Secondary School in the research area, instructing students in the use of birdwatching equipment, taking them birdwatching and teaching them about conservation. Six posters, each with information about local important birds, were created and distributed to each school. One SRCS cadet initiated a Wildlife Club in the Secondary School.

Tourism to Red Siskin sites has increased, and now irregularly employs some SRCS rangers as guides. SRCS research has allowed tourists to see Red Siskins more reliably and, in more locations, than prior to the study, and this has provided a small revenue to three villages.

The South Rupununi remains a proposed IBA, and the SRCS has sent a full report to BirdLife International that should provide all necessary information for IBA validation.

This project has successfully laid the foundations for more specific Red Siskin investigations, and development of a local culture of environmental sustainability and conservation awareness.

PROBLEMS ENCOUNTERED AND LESSONS LEARNT

OVERALL ASSESSMENT

Training and field activities generally went very well, with participants gaining competency in various field and technical skills within a few months of field survey participation. Success here was partly due to sourcing joint funding from the Global Environment Facility Small Grants Programme Guyana (UNDP-SGP) which partly funded the training workshop.

Red Siskin field surveys were sometimes difficult, especially during rainy season with wet weather, but also during the height of dry season with limited water sources available. Equipment and vehicular problems were more frequent during the rainy season, and many Red Siskin sites are basically inaccessible during this period, which means the overall data collection was skewed in favour of dry season observations.

Project activities were necessarily flexible to accommodate individual Ranger household, seasonal farm, work, and village responsibilities. While newer Cadets faced similar constraints, their involvement and enthusiastic influence on the team allowed older Rangers more freedom in rotating their participation on field surveys where necessary. Team co-ordinators were also faced with negotiating similarly complex responsibilities, collectively assisting and taking over correspondence, newsletters, data management, and accounting where necessary. The UNDP-SGP funding provided for a full time Project Manager, without whom the project is unlikely to have succeeded.

Most significantly, time and personnel constraints resulted in what was initially envisioned as a much more modest educational outreach programme. In retrospect, this simple, hands-on, and relatable approach became one of the most successful components of the project.

The Rangers became the strongest advocates of SRCS conservation goals, but they were reluctant to be sworn as community police since several were already community police and rural constables, with the remainder having no interest in taking on the additional responsibilities associated with the role.

One significant problem facing the team was the intermittent loss of Rangers and Cadets who left to pursue economic opportunities in Lethem, Georgetown, Boa Vista, and the gold bush. This is a widespread and endemic issue in the region, and is by no means unique to this project. Given the relatively low stipends received by Rangers for conservation work, the most effective way of retaining Rangers would be to increase stipend rates.

The team also experienced a tragic event with the death of Ranger Harold Isaacs of Potarinou in a motorcycle accident during the February 2015 training workshop. The SRCS team has since continued to remain extremely careful and vigilant on all field activities, especially on road safety.

FIELD METHODS

Mist-net operations, and Red Siskin measurement and banding allowed Rangers and Cadets to gain invaluable up-close experience with a variety of small and medium-sized local bird species, with each team member improving at their own pace at the variety of research and field skills involved. Field surveys also placed Rangers in more frequent contact with local bird trappers, allowing for friendly communication and Rangers thus being able to make sure that no Red Siskins were trapped.

EDUCATION OUTREACH

Newsletters and school bird-watching field trips were effective outreach methods, limited only in their distribution and frequency. The production of high quality conservation-related posters had to be done in Georgetown, which took far longer than we had initially foreseen, and at a higher cost. In the future, greater attention to budgeting for printing materials is needed, especially if a more comprehensive set of afterschool activities are to be planned and implemented at Primary and Secondary School levels.

TIMESCALES

The main project activities were completed in a timely manner, but under-budget. We therefore successfully requested an extension of the initial timeline to include the production of educational outreach materials and this took far longer than we initially anticipated, meaning that the Project Manager completed his scheduled time with SRCS before the project concluded. Finishing the final reports and assembling the documents could have been accomplished by the Executive Committee much sooner than it was.

LESSONS LEARNED

Regular Red Siskin field surveys are an important and effective method of maintaining consistent local awareness and understanding of conservation. The project provided the SRCS with a strong foundation for practical education outreach to local students through bird identification – a basic Ranger skill – and opportunities for recent school leavers to learn and involve themselves in this project, and ultimately a broader range of other conservation and research work in the region.

IN THE FUTURE (MAX 200 WORDS)

The SRCS was awarded a Mohamed bin Zayed Species Conservation Fund (2016), and continued Red Siskin research and education outreach through 2017. Current priorities include further study of Red Siskin movements by continued banding and building an accurate population estimate, and research into the ecological effects of bird trapping (i.e. *Oryzoborus angolensis*, *Sporophila crassirostris*) which share habitats with Red Siskins. The SRCS also began to investigate landscape protection and alternative income opportunities for farmers to mitigate local bird-trapping, with a Rufford Foundation grant (2016) to investigate and pilot indigenous trees and shade-grown coffee, inspired by the Bird-Friendly Coffee © standards developed by the Smithsonian Institution. We are presently seeking funding to continue these endeavours.

Although we consider the Red Siskin to be an ongoing success story, we observe population pressures, development, and changing lifestyles putting tremendous stresses on the environment of the South Rupununi. Only consistent, mindful efforts to change our behaviours will allow the recovery of local fish and wildlife populations. Thus, we see education and alternative income generation to be the key drivers to our long term conservation efforts in the Rupununi. These are our central objectives in planning future conservation work.

SECTION IV

APPENDICES

Annex 1: Banding Data

Annex 2: General Locations

Annex 3: Habitats

Annex 4: Siskin Behaviour

Annex 5: Siskin Observations

Annex 6: Weather Data

Annex 7: Newsletters_zipped file

Annex 8: Red Siskin Initiative

Annex 9: Back from the Brink _ article and reprint

Annex 10: Bird Book PDF

Annex 11: Posters of important birds

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2003 Discovery of a population of the endangered Red Siskin (*Carduelis cucullata*) in Guyana. *The Auk*, Vol 120 (2):291–298.

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DISTRIBUTION LIST

Copies of the report have been distributed for reference to the following organisations:

- The South Rupununi Conservation Society, Dadanawa Ranch
- The South Central Peoples' Development Association, Shulinab Village
- The District Toshao Council, and all constituent South Central and Deep South Rupununi Village Councils (Including a total of 13 villages: Achiwib, Aishalton, Awarwanau, Karaudar, Katoonarib, Maruranau, Parikwarunau, Potarinau, Rupunau, Sand Creek, Sawariwau, Shea, and Shulinab)
- Hon. Minister Sydney Allicock, The Ministry of Indigenous People's Affairs, Georgetown
- Karen Small, Biodiversity Division, The Environmental Protection Agency Guyana, Georgetown
- Patrick John, Programme Coordinator, UNDP Small Grants Programme Guyana, Georgetown
- Dr. Michael Braun, Smithsonian Institute