

2008 Junior Stewardship Ranger Program

Final Report & Program Overview



Prepared by Evan Putterill, Tessa Stiven, and Larry Duke
on behalf of The Ministry of Forests and Range
Haida Gwaii Forest District

I. Key Personnel

Project Leader: Leonard Munt, District Manager, Haida Gwaii Forest District

Project Supervisor: Larry Duke, Stewardship Technician, Haida Gwaii Forest District

Southern Co-ordinator: Evan Putterill, University of Victoria Honours Student

Northern Co-ordinator: Tessa Stiven, University of Victoria Co-op student

Payroll: Patricia Moore, Haida Gwaii Youth Society

Southern Crew: Simon Lemaire, Tristan Cober, Raven Engel & Sarah Duthiel

Northern Crew: Tow Stocker, Skyler Boulton-Brown, Nathaniel Edwards & Kyle Hall

II. Project Overview

The Junior Stewardship Ranger (JSR) Program was spearheaded in order to engage youth in the management of natural resources on Haida Gwaii/Queen Charlotte Islands. For four consecutive years, local high school students have been hired to explore career opportunities in natural resource management, and provide labour to local conservation, government, industry, Haida, and volunteer groups on the islands. The youth benefit from a unique educational opportunity while contributing to the community through their hard work on various natural resource-based projects.

In the previous three years the program employed one crew of four high school students and one program co-ordinator based out of Queen Charlotte. This year, the program was expanded in order to offer equal opportunities to students and partners from both northern and southern communities: crews of 4 high school students and one co-ordinator were based out of both Queen Charlotte and Massett.

The program co-ordinators, university co-op students, were hired by the Ministry of Forests and Range (MFR) and tasked with organizing the program schedule, publicizing the program, recruiting the eight high school students, interviewing and selecting the successful applicants, supervising the crews on joint and individual projects, and composing final reports for the Gwaii Forest Society and the Ministry of Forests and Range.

The program provides students with a unique opportunity to participate in resource management and community involvement on the Queen Charlotte Islands. This summer, students performed their assigned tasks diligently and took pride in the contributions they made to the various projects.



III. JSR Program Objectives

The first goal of the JSR Program is to build local capacity in forest stewardship by introducing high school students to careers in natural resource management through exposure and hands-on experience in a variety of forest related activities.

Throughout the course of the JSR Program the students participated in a variety of projects related to forest and environmental stewardship; these projects exposed students to an array of well paying and fulfilling careers. The following list outlines these projects (project summaries can be found in Appendix A):

- Forest stewardship monitoring
- Breeding bird surveys
- Goshawk monitoring
- Crabapple seedling restoration
- Deer/Beaver enclosure maintenance
- Terrestrial ecological restoration
- Inertial plant transplants
- Invasive plant removal
- Salmon enhancement

In addition to these projects the students participated in stewardship related field trips and attended presentations from a variety of Ministry of Forests and Range, Parks Canada, and Haida Heritage and Forest Guardians staff. These presentations and field trips will be discussed later in this section.

The second goal of the JSR Program is to provide maintenance on recreation sites and trails throughout the Islands.

Not only did the JSR Program build local capacity in forest stewardship, it also gave the students the opportunity to help the community by performing maintenance on many of the recreation sites and trails on the Queen Charlotte Islands. Throughout the course of the summer, northern and southern crews spent approximately 524 person hours performing maintenance on recreation sites and trails. Detailed project summaries can be found in Appendix A.

Approximately 260 person hours were spent on the maintenance of recreation sites: 35 were spent cleaning the Hiellen Campground in the Tow Hill area, 35 were spent cleaning the beach in Old Massett, 110 were spent performing maintenance on the Mount Moresby Adventure Camp grounds, 70 were spent cleaning the Moresby Camp recreation site, and 10 were spent cleaning the Gray Bay recreation site.

Approximately 265 person hours were spent on the maintenance of trails throughout Haida Gwaii: 100 were spent brushing, marking, and surveying the Cape Fife Trail, 64 were spent brushing the access road to the Yakoun Lake Trail, 24 were spent brushing and resurfacing the Sleeping Beauty Trail, 8 were spent brushing and surveying the Anvil Trail, 30 were spent maintaining a trail near the Mount Moresby Adventure Camp, 20 were spent brushing the Onward Point and Secret Cove trails, and 18 were spent maintaining jogging trails in the Kagan Bay area.

The students provided a valuable service to the communities of Haida Gwaii while gaining skills in recreation site and trail maintenance. They were also able to explore a large cross-section of some of the most exciting and beautiful areas on the Queen

Charlotte Islands. In addition, the students were exposed to the complexities of recreation management and its place in natural resource management and sustainable community development.

The third goal of the JSR Program is to protect previous SMFRA funding investments on recreational sites and trails.

Out of the trail and recreation work outlined above, approximately 32 person hours were spent protecting previous SMFRA funding investments on recreational sites and trails, including work on the Sleeping Beauty and Anvil trails. There is potential for this number to increase in years to come.

The fourth goal of the JSR Program is to form partnerships with other groups on Island with similar goals of providing opportunities for youth to expand their capacity and to open up their horizons.

Building the capacity of the students was the central goal of the JSR Program this summer. Each of the projects contributed to the accomplishment of this goal. Partnerships were formed and/or strengthened with a variety of groups, including educational institutions, government agencies, Haida organizations, community groups, and forestry companies. Note: project summaries in Appendix A should be used to support the following paragraphs.

The partnerships with local high schools have been essential to the success of the JSR Program and will continue to be in years to come. Use of school facilities, and class and staff time allowed for effective JSR Program promotion and participant selection. This year, the relationship with schools was strengthened in several ways. The educational component of the program was re-focused and the possibility of accrediting the program as a locally developed course through the school district was explored. These initiatives were designed to help the educational community understand the potential of the JSR Program. As well, the expansion of the JSR Program northwards allowed for the relationship with George Mathew Dawson High School to improve.

The Mount Moresby Adventure Camp is a youth camp which is dedicated to outdoor education, exploration, and environmental education; all of which build the capacity of youth. This year both JSR crews spent a week at the adventure camp during which work was done at the adventure camp and at nearby recreation sites. This symbiosis allowed for the JSR Program to help out a local capacity building organization while using its facilities as a staging area for other projects.

In addition to the partnership with the Ministry of Forests and Range, the JSR Program worked in partnership with several other government agencies and Haida organizations which have a strong interest in building the capacity of local youth, including the Gwaii Haanas National Park Reserve and Haida Heritage Site, Fisheries and Oceans Canada and the Salmon Enhancement Program, BC Parks, the Haida Heritage and Forest Guardians, and Haida Fisheries organization.

Logging companies also have a strong interest in building the capacity of local youth. The JSR Program worked in partnership with Husby Forest Products for the fourth year in a row; the partnership entailed a four day trip to Eden Lake logging camp as an in-kind contribution from Husby Forest Products. In addition, the partnership with the Teal Jones Group was rekindled and there is potential for it to be strengthened in the years to come.

In addition, a new partnership was forged with the residents of Kumdis Island. Both crews stayed at the residents' cabins for one week while working on crabapple and yew restoration, and bridge-building. Although the residents don't have a mandate to build capacity their generosity certainly contributed to the cause.

The fifth goal of the JSR Program is to allow students to participate and experience first hand how resources on our Islands are managed.

In addition to the work done on recreation sites, the students were able to participate and experience first hand how resources on Haida Gwaii are managed. The discussion of the first goal of the JSR Program (above) lists a variety of projects that gave the students hands on experience in locally based natural resource management. In addition to these projects the students participated in stewardship related field trips and attended presentations from a variety of Ministry of Forests and Range, Parks Canada, and Haida Heritage and Forest Guardians staff. These presentations and excursions in conjunction with the hands on field work gave the students a well rounded idea of how natural resources are managed on the Queen Charlotte Islands.

Presentations regarding careers, education, and duties were given by members of the Haida Gwaii Forest District's stewardship, tenures, revenue, scaling, and engineering business areas in addition to presentations from the districts First Nations liaison and planning forester. Haida Heritage and Forest Guardian personnel gave the students presentations on ecosystem based management and Haida archaeology.

While on these field trips the students were able to see how the theory from the presentations was applied on the ground. Field trips included discussions and examples with regard to ecosystem based management, riparian management, management of cultural resources, management of non-timber forest products, conservation of cultural plants and forest stewardship monitoring.

The sixth goal of the JSR Program is to provide summer employment to local youth with demonstrated benefits to the community in a positive team building environment.

The JSR Program provided employment for eight local high school students for six weeks and for one local co-ordinator for four months. During the duration of the JSR Program a multiplicity of projects took place, all of which benefited island communities in various ways. A more exhaustive summary of these projects can be found in Appendix A, and in the section on trails and recreation sites (above). The following are several examples of how these projects benefited the island community(s):

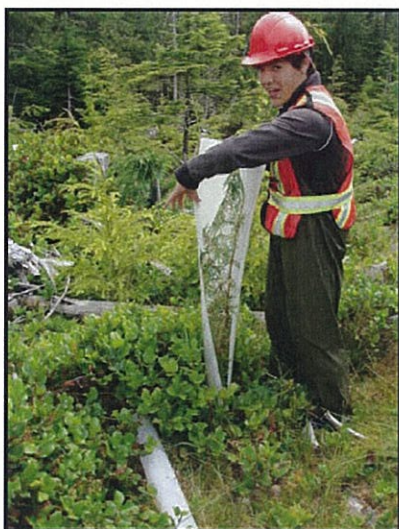
- The Old Massett beach cleanup is an example of a project that had obvious and immediate benefits to the people of Old Massett, who are able to enjoy a garbage free green space.
- The fry releases performed near Alliford Bay and in Eden Lake contributed to the enhancement of the salmon resource, which our island communities, and future generations are directly dependent upon.
- The removal of invasive plants benefited the community by helping to remove environmental threats to a natural resource based economy. It also benefited the Haida community by helping to prevent the crowding out of cultural plants.
- Clean-up of the Moresby Camp recreation site benefited island communities, especially Sandspit, by supporting efforts to strengthen the tourism industry.
- Participation in crabapple restoration acted to guard a small number of culturally and ecologically significant plants from Sitka Black Tail browse, benefiting the

Haida community by safeguarding cultural plants and the community at large by helping to preserve a species threatened by deer browse.

The seventh and final goal of the JSR Program is to promote the importance of education and showcase the career opportunities available locally to those who complete high school and higher levels of education.

Over the course of the summer students had the opportunity to be exposed to a variety of fulfilling careers, all of which are available locally to those who complete high school and higher levels of education. As outlined above, students were exposed to these careers in a variety of ways: through job shadow, presentations, field trips, and field work projects.

In addition to this, the JSR Program co-ordinators, who were both university students, spent a good deal of time discussing the merits of post secondary education and encouraging students to graduate high school and pursue higher education. These informal discussions revealed that one of the students was interested in becoming a marine biologist, another was interested in becoming a forester, and yet another was interested in becoming a natural resource manager. In the student's final evaluations most indicated that they were eager to peruse higher education and about half indicated that they would be interested in perusing careers in natural resource management.



IV. Evaluation

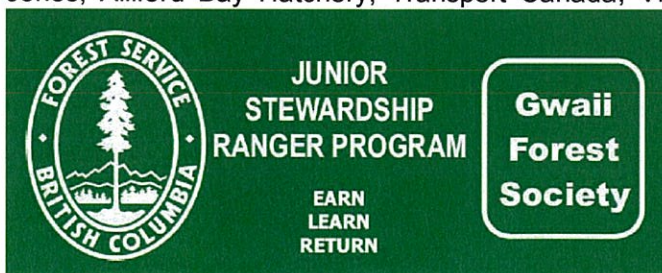
In general, the program was very successful this summer. Expanding the number of community partnerships and program participants resulted in additional opportunities for youth and greater ability to achieve the program objectives. As well, program expansion allowed for greater spatial equality for Haida Gwaii youth. Although program expansion did present the coordinators and their supervisors with additional orchestration and logistics, the summer program ran smoothly and safely. In general, we recommend continuing to offer the program to eight high school students, with one crew based in the northern region and one crew based in the southern region. The following is a summary of the program highs and lows, which were identified through use of evaluation forms, formal discussions, and informal dialogue.

Community Partnerships

The JSR program was fortunate to partner with the Haida Gwaii Youth Society again this year. The Youth Society has been an important partner since the program started four years ago and is critical to the program's success. The Youth Society supports the program by facilitating the administration of the student payroll. This program and the Youth Society share a common goal of providing opportunities to local youth, creating a complimentary partnership.

Many new community partnerships were established to accommodate the larger program size and to increase the diversity of perspectives and projects of partner organizations. With the expansion of the program to the northern region of the Island, establishing partners with northern organizations was key to the success of the northern program. Establishing community partnerships in the northern region took significant effort and time because the Forest Service in general, and the JSR program specifically, has had a low profile in the northern region. Face-to-face visits with potential organizations and partners proved to be the most successful means of increasing the programs awareness and establishing projects. The new community partners in the northern region this summer were Delkatla Nature Sanctuary, Northwest Recreation, Old Massett Village Council, the Kumdis Island Residents, Haida Heritage and Forest Guardians, and Wildlife Dynamics consulting. All of these partners have expressed interest in having a crew of Junior Stewardship Rangers return next year. Delkatla Nature Sanctuary expressed interest in increasing their involvement next year, perhaps designing a week long project to accommodate next year's crews.

In addition to the new partnerships established in the northern region, new partnerships in the southern region were also established: Mount Moresby Adventure Camp, Teal Jones, Alliford Bay Hatchery, Transport Canada, Village of Queen Charlotte and the



Queen Charlotte Joggers Club. These new community partners help to increase the profile of the JSR program. Sustaining this program for future years relies on community awareness, support and involvement with the program. To help increase the profile of the program in the

community, magnetic truck signs were placed on both crew vehicles, identifying the program and recognizing the key financial supporters, the Gwaii Forest Society and the Ministry of Forest and Range.

All partners from previous years, aside from the Hecate Straight Streamkeepers, were happy to continue involvement in the program this summer and projects were developed with each of these organizations. The lack of involvement from the Hecate straight Streamkeepers was not a result of a lack of desire on their part to participate, but instead was a result of organizational and logistical limitations facing the HSSK organization this summer.

One of the most successful partnerships formed this summer was with the Haida Heritage and Forest Guardians (HHFG). Developing a partnership with the HHFG's was made a priority for the program this year. A key factor in the success of the partnership with the HHFG's this season can be attributed to the coordinators' efforts to develop face-to-face contact. Both coordinators visited the HHFG office and participated in short meetings with HHFG staff on numerous occasions. This summer the HHFG facilitated three field days, and one office day for all eight students of the JSR program. The success of these field days was reflected in student comments expressing that these days were both fun and very educational. The perspective on natural resource management offered by the HHFG was extremely valuable and provided an excellent contrast to the perspectives offered by the Forest Service and forest tenure holders. For next summer's program, we would suggest that a partnership with the HHFG is continued; however field trip days could be decreased to 1 or 2 days to minimize the impact on the HHFG budget, and days in which individual students assisted a HHFG employee in the field could be added. The hope of including some job shadowing would hopefully steer the involvement with the HHFG away from a touring focus and give the students the opportunity for more hands-on involvement with the HHFG.

In addition to offering diverse perspectives, the partner organizations this summer represented a wide variety local organization types. Partners included federal, provincial and municipal governments, council of the Haida Nation, forest tenure holders, non-profit organizations, private consultants and a resident's organization. This diversity organization types involved in natural resource management on Haida Gwaii highlighted for the students the diversity of interest groups involved in land use decisions and land management on Haida Gwaii.

Projects

Projects this year encompassed a wide variety of activities: trail and site maintenance and construction, ecological restoration, field surveying of flora and fauna, environmental monitoring, site reconnaissance and assessment, cedar regeneration protection, invasive plant removal and educational tours. Through participation and engagement in these activities, students gained a large skill set: survey techniques including sampling methods and data collection, air photo and map interpretation, plant identification, CMT identification, use of hand tools, basic construction and trail maintenance, team work, leadership, and safety procedures. Participation in these activities also expanded the students' knowledge of ecological processes, governance of natural and cultural resources, and aquatic and terrestrial ecosystem complexity and connectivity. For a more detailed description of projects, skills gained and prescribed learning outcomes please refer to the project summaries in Appendix A.

Bringing awareness to the educational component of the projects was a focus for the coordinators this summer. Prescribed learning outcomes were designed by the coordinators and were used to guide a post-project reflective discussion with the students as part of the project evaluation process. The goal of developing prescribed learning outcomes was to increase student's awareness of their learning experiences. Through discussion we hoped to provide the students with a theoretical context for their

practical experience and give the students the opportunity to recognize ways in which their practical experience relates to larger issues in local resource management.

It is challenging to assess the success of our attempt to increase the educational component of the program. There was some concern that increasing the educational component by planning tours with partner organization would decrease the number of work-based projects and thus decrease the accomplishments of the program and the satisfaction felt by the students. From discussions with the students and our own observations, we conclude that the educational component did not compromise the ability of the program to significantly engage in work-based projects. Students expressed their enjoyment of the educational aspects of the program and felt that the educational aspects were as rewarding as the work-based projects.

The challenge of analyzing the educational success of the project lies in the difficulty of finding a means of assessing students' comprehension of topics covered. On a qualitative level, coordinators were able to judge students' engagement by observing their questions and entering into discussions. However, many of the younger students did not readily display engagement; however when informally quizzed, they displayed adequate comprehension of the topics. An analysis of the educational component of the JSR program will be explored in more detail, and recommendations for next years educational component will be suggested, in a co-op report this year.

Participants

This summer eight students were employed as Junior Stewardship Rangers. Five students had completed their grade 10 year, two students had completed their grade 11 year, and one student had just graduated from high school. One student was from Old Massett, three students were from Masset, one student was from Tlell, one student was from Skidegate and two students were from Queen Charlotte.

The program typically targets students entering their senior years of high school so that they can make informed decisions on their Grade 11 and 12 electives, and thus the high number of grade 10 participants is typical. However, we feel that the grade 11 and 12 students this year perhaps gained more from their experience than the grade 10s and were also a strong asset to the crews. These students had the knowledge and maturity to engage in projects, contribute to discussions and reflect on their experiences. Thus, we feel that this program should be welcoming of older applicants, and continue to require grade 10 as a minimum age for students to be considered for the program.

For the majority of the grade 10 students, their participation was their first introduction to the field of natural resource management. For these students, developing field work skills and developing basic foundational knowledge in natural resource management was expected and achieved. One of the grade 11 students was returning for his second year as a Junior Stewardship Ranger, and thus a display of leadership ability and deeper engagement in issues surrounding resource management was expected. This student surpassed our expectations and was a very valuable asset to the team. From this experience, we would recommend re-hiring past participants as they have potential to be excellent peer role models. The one recent high school graduate in the program this year especially benefited from the over-view of careers in natural resource management provided by the program. This student will be entering post-secondary education in the field of forestry and will bring a wealth of practically gained knowledge into the post-secondary classroom. This student was also a recipient of a scholarship this year from the Ministry of Forests and Range's Sustainable Resource Management Scholarship Fund.

The participants were divided into two crews of four students with one supervisor. Throughout the summer there was some flexibility between crews and students had the opportunity to work with students from the other crew. For large projects and extended camping trips, both crews often worked and camped together. We believe mixing and combining the groups was successful because it offered students the opportunity to learn from a more diverse group of peers and offered more opportunity for expression of team and leadership skills. As well, camping with the combined group offered students more people to relax with in time off, making the camping trips more successful from the perspective of student enjoyment.

Recruitment of students was not as successful this year as we hoped it to be. We received a total of 5 applications for the Northern Crew and 8 applications for the Southern Crew. This was a decrease in applications received last year; a further challenge given that the program was seeking four additional students. As a result, building well-rounded crews was challenging. Recruitment strategies this year was similar to last year: postering, pamphleting, advertisement and press release in the Observer, presentations in high school classrooms and a booth in the high school hallways. Recruitment was more challenging in Masset for multiple reasons: the JSR program is less known in Masset because there have been very few past participants from Masset, the coordinators had less connections in Masset, and the high school in Masset showed less support for the program than the high school in Queen Charlotte. Two strategies to improved recruitment in Masset could be to develop a stronger partnership with the high school, and focus more on informal, face-to-face recruitment strategies. For the former suggestion, the coordinators could meet with the high school principal to outline the strong educational benefits of the program and also offer to help students with the application process during a planning course. Hopefully, this would help the school recognize the JSR program as a great learning opportunity for the students. For the later suggestion, coordinators could spend more time engaging in conversations about the program in the community, and also contacting key community workers to share information about the position. Hopefully as the program becomes more well known in Masset interest in the program will improve. A more general recruitment suggestion is for the coordinators to immediately start program promotion when their co-op position begins. Many ideal candidates for the program this year already had summer plans by the time we were promoting the program in the high schools.

Students were paid \$10/hour and felt that this wage was fair. However, for returning participants a wage increase to \$12/hour would be recommended to compensate them for the leadership role that is expected of them. Occasionally, the returning student this summer felt disgruntled that he worked harder, and more was expected of him than the rest of the crew, and yet received the same wage.

Although it is apparent that the JSR program has been very successful in the short-term, the long-term success of the program are starting also become apparent. This spring, the top scholarship prize of the Ministry of Forests and Range's Sustainable Resource Management Scholarship Fund was awarded to a participant from the 2006 JSR Program. In her essay submission, she demonstrated excellent reflection and analyses of her experiences as a JSR participant, and highlighted how this program has steered her in a direction towards obtaining post-secondary education in the field of environmental engineering. Long-term successes such as this example are becoming increasingly apparent as the JSR program is repeated in consecutive years. The continuity of the program is important to meet the long-term goals of this program and foster growing community support.



V. Financial Summary

ITEM	RATE/UNIT	# UNITS	COST	SOURCE
SALARIES				
Post Secondary Co-op Student #1 ¹	\$165,296/day	85 days	\$14,050.16	GFS
Post Secondary Co-op Student #2 ¹	\$165,296/day	85 days	\$14,050.16	MFR
High School Student #1 ²	\$10/hour	210 hrs	\$2,100.00	GFS
High School Student #2 ²	\$10/hour	210 hrs	\$2,100.00	GFS
High School Student #3 ²	\$10/hour	139.5 hrs	\$1,390.00	GFS
High School Student #4 ²	\$10/hour	210 hrs	\$2,100.00	GFS
High School Student #5 ²	\$10/hour	188.5 hrs	\$1,885.00	GFS
High School Student #6 ²	\$10/hour	192.75 hrs	\$1,927.50	GFS
High School Student #7 ²	\$10/hour	207.5 hrs	\$2,075.00	GFS
High School Student #8 ²	\$10/hour	205.5 hrs	\$2,055.00	GFS
High School Student 4% Vacation Pay			\$625.58	GFS
ACCOMMODATIONS				
Eden Lk Accommodations for 5 ³	\$75/night/person	4 nights	\$1,500.00	Husby
FOOD				
Cape Fife Trip - Crew of 5		2 days	\$41.73	GFS
MMAC & Moresby C - Crew of 10		4.5 days	\$180.76	GFS
MMAC & Moresby C - Crew of 10		"	\$296.11	GFS
MMAC & Moresby C - Crew of 10		"	\$400.00	GFS
Kumdis Island Crew of 9		4 days	\$391.84	GFS
TRANSPORTATION				
Forest Service Trucks ⁴	\$375/month	12 weeks	\$1,125.00	MFR
5 Students flight to Eden Lk		1	\$1,591.52	Husby
Truck 1 Fuel		6 weeks	\$1,112.00	MFR
Truck 2 Fuel		6 weeks	\$1,001.46	MFR
Reimbursement for Mileage ⁵			\$122.01	MFR
Ferry Fees		8 trips	\$361.80	MFR
FIELD/OFFICE SUPPLIES				
Office Support for 2 ⁶	\$150/week	17 weeks	\$2,550.00	MFR
WCB ⁷		1	\$154.76	MFR
CCRA ⁷		1	\$420.23	MFR
CPP ⁷		1	\$0.00	MFR
Liability Insurance		1	\$250.00	MFR
Haida Gwaii Youth Society Book Keeping		1	\$250.00	MFR
Magnetic Truck Signs		1	\$267.50	MFR
Waste Disposal Fee		1	\$16.00	MFR
Special Field Equipment		1	\$65.31	MFR
Newspaper Advertisements		2	\$170.73	MFR
TOTAL			\$56,627.16	
In Kind - MFR			\$21,916.96	
In Kind - Husby			\$3,091.52	
GWAIL FOREST TOTAL:			\$31,618.68	

¹ Entry level salary for BCGEU forestry technicians. Identical wage sought from GFS for second co-op student

² Actual time worked and wages paid

³ Fixed cost per person includes food, accommodation and other camp support items. Only room for 5 students

⁴ Predetermined rate paid by District for each truck - does not include fuel

⁵ Massett Coordinator compensated for mileage on personal vehicle for travel to Masset at start of 6 week program

⁶ Predetermined rate for each employee - inclds stationary, computers, photocopying, safety monitoring, basic field gear, clerical support

⁷ Actual expenses for high school students. CPP not applicable as all students were under the age of 18

VI. Appendix A - Project Summaries

Cape Fife Tail Assessment and Maintenance

Partner organization: Ralph Stocker and Lucy Stefanyk with BC Parks

Number of person hours: 80 hours (5 people x 16 hours)

Description of project: Working with Ralph, the Northern crew hiked the 10 km trail to the Cape Fife Shelter. While hiking the crew performed trail maintenance: brushing-out over grown sections, brushing-in muddy sections, removing blow downs, and putting up trail markers. As well, the crew identified locations on the trail that require new trail structures to be built such as new boardwalks. These locations were recorded by GPS and described in a field note book. This information will be used by Lucy to prioritize and locate future trail work. The crew spent the night camping at the Camp Fife shelter, and continued performing trail maintenance on the return hike on the following day.

Skills emphasized: use of hand tools (bow saw, loppers, shears, axe, hammer, wrench), use of GPS, overnight backcountry camping, plant identification, and teamwork.

Prescribed learning outcomes:

- demonstrate awareness of the connection between recreation management and natural resource management
- describe the role of recreation values in land-use decisions
- demonstrate safe and effective use of hand tools in a field environment

Ecosystem Based Management Field Trip and Presentation

Partner organization: Gerry Johnson, Travis Glassman and Lana Wilhelm with the Haida Heritage and Forest Guardians.

Number of person hours: 100 hours (10 people x 10 hours)

Description of project: The Southern and Northern crew participated in a day field trip with the Forest Guardians designed to introduce the crews to ecosystems based management and the Haida perspective of resource management on Haida Gwaii. Discussions and observations took place at several locations along logging roads between Queen Charlotte and Port Clements. Sites included: the Golden Spruce trail, a harvest area on the East Yak Main, Yakoun River, and Yakoun Lake. The students were expected to engage in the presentation by asking questions and entering into discussions.

Skills emphasized: identification of Haida land values, cultural plant identification,

Prescribed learning outcomes:

- demonstrate awareness of and appreciation for the Haida's relationship with natural resources on Haida Gwaii
- define *ecosystem based management* and *fish forest interaction*
- define *disturbance, wind throw, retention patches, waste, salvaging* and *rotation cycle* as they relate to cut blocks on Haida Gwaii
- identify non-timber forest products (NTPFs) and demonstrate awareness of NTPFs as a component of forest management
- describe the function of the Council of the Haida Nation in governing natural resource management on Haida Gwaii

Haida Archaeology Field Trip and Presentation

Partner organization: Percy Crosby and Elizabeth Bulbrook with the Haida Heritage and Forest Guardians.

Number of person hours: 90 hours (10 people x 9 hours)

Description of project: The Southern and Northern crew participated in a day field trip with Percy touring CMTs in the Juskatla region. CMTs observed included bark stripping, plank board, test holes, stumps and canoes. As well, both crews participated in a presentation and field trip with Elizabeth. The crews searched for stone tools and middens on Honna Beach, observed and discussed CMTs on the Spirit Lake trail, and toured the Haida Heritage Center.

Skills emphasized: identification of stone tools, identification and interpretation of different types of CMTs,

Prescribed learning outcomes:

- demonstrate awareness of and appreciation for the Haida's relationship with cedar trees
- describe the significance of archaeological findings to issues of land development, use and title.

Point Surveys of Song Birds

Partner organization: Margo Hearn with Delkatla Nature Sanctuary.

Number of person hours: 12 hours (3 people x 4 hours)

Description of project: The Northern crew joined Margo for a morning of song bird surveys. A two minute point count was conducted every 100 m on the dike road.

Skills emphasized: identification of song bird calls, songs and appearance; use of hip chain; methods for recording bird species.

Prescribed learning outcomes:

- apply point survey methods to describe song bird presence in study area
- identify the role of songs and calls in bird behaviour
- demonstrate awareness of the ecological, social and economic value of song birds

Razor Clam Surveys

Partner organization: Vanessa Bellis with Haida Fisheries

Number of person hours: 50 hours (5 people x 10 hours)

Description of project: The Northern crew assisted the Razor Clam survey crew for two mornings with their annual assessment of razor clam population on North Beach and Agate Beach. The crew helped set up survey ring, operate Stinger, dip-net clams and record clams. After one of the mornings of field research the crew returned to the Haida Fisheries office to weigh and measure the clams.

Skills emphasized: plot sample methods, lab sample methods, dip-netting and teamwork

Prescribed learning outcomes:

- demonstrate use of survey tools and data collections skills
- demonstrate awareness of the use of species population data to guide resource management plans
- analyse the function of fish and shellfish management as a component of natural resource management on Haida Gwaii
- describe the function of Haida Fisheries in natural resource management on Haida Gwaii

Crabapple Tree Enclosures

Partner organization: Kiku Dhanwant and Jacques Morin with the Kumdis Island Residents

Number of person hours: 80 hours (4 people x 20 hours)

Description of project: A combination of students from the Northern and Southern crews installed cages around crabapple trees on Graham Island adjacent to the Kumdis Slough. Kiku helped the crew locate crabapple seedlings and discussed with the crew good site conditions for optimal growth in crabapples. The crew continued to learn about optimal micro sites for crabapples through observation of existing crabapple trees. The students then prioritized crabapple seedling to protect and installed wire cages from ¼ m x ¼ m to 3 m x 3 m. In addition to protecting crabapples, some yew tree seedlings were identified and also caged.

Skills emphasized: plot sample methods, lab sample methods, dip-netting and teamwork

Prescribed learning outcomes:

- identify micro site characteristics such as sunlight, competition, moisture that affect the potential for seedling survival.
- Demonstrate awareness of the importance of careful observation in ecological restoration work.
- demonstrate awareness of the historical, cultural, ecological and economic factors of invasive animals
- describe plant defences to animal grazing
- demonstrate awareness of the cultural significance of crabapple trees

Beaver Exclosures

Partner organization: Lucy Stefanyk with BC Parks and Larry Duke of Ministry of Forests and Range.

Number of person hours: 30 hours (5 people x 6 hours)

Description of project: The crew, assisted by Larry, helped repair two beaver exclosures on Mayer Lake designed to protect crabapple trees. Larry boated students to and from the exclosures. Repairs included replacing wire fencing, adding additional nails, adding wooden stakes to strengthen sections and filling locations where beavers tunnelled under fence.

Skills emphasized: use of hand tools (hammers, wire cutters), basic construction skills, boating safety.

Prescribed learning outcomes:

- describe the purpose of exclosures and hypothesize their success
- demonstrate awareness of the historical, cultural, ecological and economic factors of invasive animals
- describe plant defences to animal grazing
- demonstrate awareness of the cultural significance of crabapple trees

Operational Forestry and Isolated Camp Experience

Partner organization: Jonathan Fane with Husby Forest Products

Number of person hours: 100 hours (4 people x 25 hours)

Description of project: The combination of students from the Northern and Southern crews spent four nights at Husby Logging camp and Eden Lake. The crew assisted with vexar cone removal, trail building, alder brushing, and coho fry release. The crew participated in an operations tour, observing the dryland sort, the grapple yarder, the super snorkel, and the rock driller. The students spent a morning at the hatchery preparing for the fry release.

Skills emphasized: use of hand tools (carpet knife, loppers, sandvik), trail building skills, vexar cone removal, juvenile salmon care, safety procedures and concerns around heavy machinery.

Prescribed learning outcomes:

- demonstrate awareness of the operations occurring in a logging camp
- analyze the role of the forest industry in natural resource management on Haida Gwaii
- analyze the role of foresters with regards to silviculture

Old Masset Beach Clean-up

Partner organization: John Disney with Old Massett Village Council

Number of person hours: 35 hours (5 people x 7 hours)

Description of project: The Northern crew spent one day cleaning the beach in front of Old Massett. Students bagged garbage and delivered it to the Masset Transfer Station.

Skills emphasized: safety precautions with garbage pick up, community involvement, teamwork

Prescribed learning outcomes:

- describe the effects that garbage has on coastal and marine environments
- analyze the importance of *community involvement* and *community outreach*
- analyze the psychological and ecological benefits of trash free environments
- define *bio-hazard*, and describe how bio-hazardous material should be handled

Goshawk Research Assistance

Partner organization: Frank Dyole (supervisor), Jacques Morin (southern field supervisor) and Nick Reynolds (northern field supervisor) with Wildlife Dynamics Consulting

Number of person hours: 63 hours (7 people x 9 hours)

Description of project: Students from both the Northern and Southern crew individually assisted the Goshawk researchers with collection of field data. One student per day joined two goshawk researchers with their reconnaissance work of goshawk breeding sites. Reconnaissance work included searching for suitable habitat, visiting past nesting sites, searching for signs of goshawks (white wash, pellets, recent kill), recording presence of songbirds and playing recorded goshawk alarm calls.

Skills emphasized: air photo and map interpretation, navigation with a compass and map, pellet identification, bird song identification, raptor habitat identification

Prescribed learning outcomes:

- describe typical goshawk habitat
- analyze and describe the effect that *clear-cut logging* has had on goshawk habitat
- analyze and describe the effectiveness of *wildlife patches* in *clear-cuts* with regard to goshawk conservation
- describe the feeding and breeding habits of goshawks
- demonstrate awareness of the importance of raptors in ecosystem health

Hiellen Campground Maintenance

Partner organization: Andrew Merillees with Northwest Recreation contracted by Old Masset Village Council.

Number of person hours: 35 hours (5 people x 7 hours)

Description of project: The Northern crew spent one day helping maintain the Hiellen campground. Activities included raking sites, pulling seedlings out of gravel site pads, picking up garbage, burning brush, installing a sign beside the tow hill viewing platform.

Skills emphasized: use of hand tools (rakes, shovels), teamwork, community involvement

Prescribed learning outcomes:

- analyze the importance of *community involvement* in maintaining local recreation sites
- demonstrate awareness of the connection between recreation management and natural resource management
- describe the role of recreation values in land-use decisions

Nature Sanctuary Maintenance

Partner organization: Margo Hearne with Delkatla Nature Sanctuary

Number of person hours: 35 hours (5 people x 7 hours)

Description of project: The Northern crew spent one day helping maintain the Delkatla Nature Sanctuary. Activities included pruning salmon berries and thimbleberries around a bird viewing platform, brushing out a trailhead, and brushing out a trail.

Skills emphasized: safe and proper use of hand tools (loppers, shears, handsaw and rakes)

Prescribed learning outcomes:

- analyze the importance of *community involvement* in maintaining local recreation sites
- analyze the role of a nature sanctuary as a site for both recreation values and wildlife preservation values.
- Analyze the importance of attracting people to local nature sanctuaries as a means of ensuring their future viability

Fish Fence & Rotary Fish Trap Dismantling

Partner organization: Kyle Yovonivich of Haida Fisheries

Number of person hours: 40 hours (4 people x 10 hours)

Description of project: One day was spent with Kyle Yovonivich, dismantling the Copper Creek Fish Fence and another was spent with Kyle dismantling the Deena Creek rotary fish trap. Dismantling the fish fence and trap the students had to work together to lift the large metal pieces. Kyle discussed Haida fisheries management practices with the students.

Skills emphasized: teamwork, leadership and use of hand tools

Prescribed learning outcomes:

- define *fish fence* and *rotary trap*
- describe the function of *fish fences/traps* with regards to *fisheries resource management* and the *First Nations food fishery*

Yakoun Lake Trail/Road Brushing

Partner organization: BC Parks

Number of person hours: 64 hours (4 people x 16 hours)

Description of project: at the request of BC Parks staff, on several occasions the southern crew spent a part of the day brushing a 1km stretch of a 1.8km road at the head of the Yakoun Lake Trail, in the Yaagun Suu Conservancy.

Skills emphasized: Hiking, proper lopper use, proper pruner use, proper use of hand saws, teamwork, & leadership.

Prescribed learning outcomes:

- demonstrate awareness of the connection between recreation management and natural resource management
- define conservancy in the Haida Gwaii context
- describe the role of recreation values in land-use decisions
- demonstrate awareness of the diversity of partners and projects involved in recreation management on Haida Gwaii
- demonstrate safe and effective use of hand tools in a field environment
- describe the various road brushing methods (*Day lighting, pruning, brush-cutting, etc*)

Hooterville Ecological Restoration

Partner organization: ILMB and the Village of Queen Charlotte

Number of person hours: 30 hours (5 people x 6 hours)

Description of project: The southern crew spent one day replanting recently vacated ¼ acre a piece of land in the Hooterville district of Queen Charlotte. The adjacent land was surveyed to determine acceptable stocking standards; invasive plants were removed from the land; and suitable plants were located off site and transplanted onto the piece of land.

Skills emphasized: use of hand tools, proper plant transplanting methods, and basic surveying skills.

Prescribed learning outcomes:

- Define *ecological restoration*
- Outline various purposes of *ecological restoration*
- Demonstrate basic plant life surveying skills
- Discuss the role of *ecological restoration* as a way to combat alien invasive species

Sleeping Beauty Trail Maintenance

Partner organization: All Island Hikers Association

Number of person hours: 24 hours (4 people x 6 hours)

Description of project: The southern crew spent a day hiking the Sleeping Beauty trail, and filling muddy sections with horizontally placed woody debris. Approximately 1/3 of the trail was covered.

Skills emphasized: proper use of hand saws, alpine safety, bush-craft, and teamwork

Prescribed learning outcomes:

- Describe the change in *forest structure* in the transition between the Skidegate Plateau, and the *sub-alpine*.
- Describe the change in *forest structure* in the transition between second growth regeneration and old growth *sub-alpine* forest.

Anvil Trail Recon and Brushing

Partner organization: Tlell Watershed Society

Number of person hours: 8 hours (2 people x 4 hours)

Description of project: The southern co-ordinator and one member of the southern crew hiked the Anvil Trail, while doing so they brushed approximately ½ km of trail and took note of the muddy sections of the trail. After the hike a trail recon report was composed by the student and sent to the Tlell Watershed Society.

Skills emphasized: basic report writing, & proper use of loppers.

Hatchery Maintenance and Fry-Releases

Partner organization: Peter Grundmann of the Alliford Bay Hatchery Group

Number of person hours: 32 hours (4 people x 8 hours)

Description of project: the southern crew spent half of a day releasing about 5000 Coho fry into creeks that drain into Alliford Bay and Shingle Bay. They spent the second half of the day day-lighting the hatchery and cleaning several thousand hatchery bio-rings (small plastic parts in filtration system).

Skills emphasized: salmon fry number estimating methods, salmon fry release methods, use of loppers and pruners, and proper use of power washer.

Prescribed learning outcomes:

- outline the ecological importance of *salmon enhancement* projects
- define *fish hatchery* and describe how one works
- describe the importance of maintaining *fish hatchery* water filters
- describe how *bio-rings* work to oxygenate water
- describe the importance of *oxygenating* the water in fry transportation tanks
- describe, from start to finish, the process of a *fry release*.

Spirit Lake Interpretive Hike

Partner organization: Linda Tollas Parks Canada Gwaii Haanas, Linda Tollas

Number of person hours: 40 hours (10 people x 4 hours)

Description of project: Both crews spent half a day hiking the Spirit Lake trail with Linda Tollas, a Haida Interpreter with Parks Canada Gwaii Haanas. During the hike Linda discussed the traditional use and significance of many cultural plants (Non-Timber Forest Products), including cedar, devil's club, skunk cabbage, Alaskan blue berries, and many more. CMTs were identified and the crews were taught the difference between test holes, bark strips, bark boards, and monumental cedars.

Skills emphasized: identification of CMTs, monumental cedar, and Haida Cultural Plants,

Prescribed learning outcomes:

- Identify CMTs and distinguish between their various types
- Identify test holes and describe their purpose
- Identify trees that have had their bark stripped and explain what the bark may have been used for
- Identify trees that have had a bark board removed from them and describe what the board may have been used for
- Discuss the importance of CMTs to the Haida people with respect to spirituality, connectivity to predecessors, and land title.
- Identify monumental cedar and discuss their importance to the Haida and to Logging Companies
- Identify Haida cultural plants and non-timber forest products and discuss their significance and importance to Haida and non-Haida.

Mount Moresby Adventure Camp Maintenance and Trail Improvement

Partner organization: Jonathan Ebbs of the Mount Moresby Adventure Camp Society

Number of person hours: 140 hours (10 people x 15 hours)

Description of project: Both crews spent four days and four nights at the Mount Moresby Adventure Camp. Part of that time was spent working with Mount Moresby Adventure Camp Society staff working on camp maintenance and trail improvement. The first day alders were cut and/or pulled and burned along with other woody debris from the grounds, and a large pile of soil was spread on the grounds using hand tools. On the second day a small footbridge was constructed on a nearby trail, the trail was brushed, and a bench was constructed from driftwood on the adventure camp grounds.

Skills emphasized: safe and proper use of various hand tools, teamwork, and bridge and boardwalk construction.

Prescribed learning outcomes:

- demonstrate awareness of the connection between recreation management and natural resource management
- describe the role of recreation values in land-use decisions
- demonstrate awareness of the diversity of partners and projects involved in recreation management in Haida Gwaii
- demonstrate safe and effective use of hand tools in a field environment

Recreation Site and Trail Maintenance

Partner organization: Colin Greenough of the Ministry of Tourism Sports and the Arts

Number of person hours: 100 hours (5 people x 12 hours + 10 people x 4 hours)

Description of project: While staying at the Mount Moresby Adventure Camp, both crews took part in the maintenance of trail and recreation sites. One day a crew of five brushed and cleared the Onward Point and Secret Cove trails, and cleaned up several sites at the Gray Bay campsite. The next day a crew of five cleared and burned woody debris and spread gravel at the Moresby Camp recreation site. The third day the northern and southern crews worked together picking up decades worth of garbage from the Moresby Camp recreation site.

Skills emphasized: teamwork, proper use of hand tools, & positive work ethic.

Prescribed learning outcomes:

- discuss the importance of the Moresby Camp as a collaborative endeavour in sustainable community development; and list the various organizations involved in its development
- demonstrate awareness of the connection between recreation management and natural resource management
- describe the role of recreation values in land-use decisions
- demonstrate awareness of the diversity of partners and projects involved in recreation management in Haida Gwaii

Inter-tidal Plant Transplant

Partner organization: Colin Greenough Ministry of the Tourism Sports and the Arts

Number of person hours: 30 hours (10 people x 3 hours)

Description of project: While staying at the Mount Moresby Adventure Camp both crews spent half a day transplanting inter-tidal plants at the future site of the Moresby Camp boat launch. The plants were moved away from where the boat launch is to be located, in an attempt to minimize the loss of inter-tidal plants.

Skills emphasized: inter-tidal soil identification, & proper transplanting skills

Prescribed learning outcomes:

- discuss the importance of DFO's zero loss of inter-tidal plants policy
- explain the process for determining suitable locations for inter-tidal transplants

Invasive Plant Removal

Partner organization: Keith Alexander North West Invasive Plant Committee and Marine Toad Enterprises

Number of person hours: 90 hours (5 people x 18 hours)

Description of project: a crew of five spent three days learning about and removing invasive plants. The first two days were spent removing scotch broom from the dunes near misty meadows campground, various mechanical pulling devices were used. The third day was spent removing several types of knotweed from Queen Charlotte and Skidgate, some was removed by hand and some was treated with salt water.

Skills emphasized: proper use of large weed pulling devices, & proper use of gas powered water pump and hoses.

Prescribed learning outcomes:

- discuss the importance of invasive plant removal
- outline the biological reasons why scotch broom and knotweed out compete native plants
- discuss the social, cultural, and political barriers to invasive plant removal
- outline possible reasons why knotweed and scotch broom were introduced to Haida Gwaii

Eel Grass Surveying & Mapping

Partner organization: Lynn Lee of BC Seagrass Conservation Group and Marine Toad Enterprises

Number of person hours: 20 hours (4 people x 5 hours)

Description of project: Lynn Lee & Christina Engel spent a day teaching the group about eelgrass monitoring practices. Transects were set at low tides and quadrates were used to measure density of eelgrass populations at second beach. GPS was used to get the coordinates of the eelgrass bed boundaries, and the data was entered into an excel spreadsheet and then used by a national mapping website to map the eelgrass beds and their health.

Skills emphasized: Field data collection methods, use of transect and quadrat as sampling techniques, GPS efficacy, use of excel to organize data.

Prescribed learning outcomes:

- outline the role that *sea-grass* plays in the marine environment
- demonstrate *GPS* skills
- describe basic surveying methods

Trail Maintenance

Partner organization: Duncan White of the Queen Charlotte Joggers Club

Number of person hours: 16 hours (4 people x 4 hours)

Description of project: the southern crew spent half a day maintaining jogging trails in the Kagan Bay area with Duncan White. Alders were cleared from a 1km stretch of road and a short section of trail was resurfaced.

Skills emphasized: proper use of hand tools

Wildlife Hazard Management at Sandspit Airport

Partner organization: Mike Dorman and Evan Putterill of Transport Canada

Number of person hours: 18 hours (3 people x 6 hours)

Description of project: a crew of three spent a day working with airfield maintenance staff at Sandspit Airport learning about wildlife hazard management. The morning was spent in the classroom learning about the cost of wildlife strikes on Aircraft and about environmentally responsible wildlife control methods. The afternoon was spent repairing a wildlife perimeter fence and learning how to use pyrotechnic devices.

Skills emphasized: safe use of pyrotechnic devices, & proper fence repair

Prescribed learning outcomes:

- outline and discuss the four types of costs that may be incurred when an aircraft collides with wildlife (loss of life, direct costs, indirect costs, & ancillary costs)
- discuss the various methods used to mitigate wildlife strikes (habitat alteration, trapping and remote release, etc)
- demonstrate safe use of pyrotechnic devices

Forest Stewardship Monitoring

Partner organization: Larry Duke and Sean Muise of the Ministry of Forests and Range, Forest and Range Evaluation Program

Number of person hours: 12 hours (3 people x 4 hours)

Description of project: a crew of three went on a half day field trip to learn about forest stewardship monitoring with Larry Duke and Sean Muise and a team of forest managers from Haida Gwaii and Victoria. They observed several surveying techniques and listened attentively to policy discussions with the Chief Forester of BC and the Assistant Deputy Minister of Operations.

Skills emphasized: various surveying methods & safe hiking in logging slash

Prescribed learning outcomes:

- discuss the importance of forest stewardship monitoring with regards to responsible forest management
- describe the various surveying techniques involved in forest stewardship monitoring
- outline the ecological values monitored by the Forest and Range Evaluation Program in the Haida Gwaii Forest District

Silviculture

Partner organization: Betsy Cramner of the Teal Jones Group

Number of person hours: 21 hours (3 people x 7 hours)

Description of project: a crew of three spent one day working with Teal Jones foresters doing silviculture work. The morning was spent removing sapling sock protectors from cedar trees and learning about the adverse effects of that type of tree protector. The afternoon was spent conducting silviculture/regeneration surveys.

Skills emphasized: various surveying methods, safe hiking in logging slash, and proper removal of seedling protectors

Prescribed learning outcomes:

- outline the process used in silviculture/regeneration surveys
- discuss the pros and cons of sapling protectors
- describe some of the adverse effects of sapling socks on cedar regeneration

Kumdis Bridge Construction

Partner organization: Kumdis island residents Jacques Morin

Number of person hours: 90 hours (5 people x 18 hours)

Description of project: While staying with Kumdis Island residents, both crews built a footbridge with a span of fifty feet and a width of six feet. Half of the first day was spent sinking four, eight foot long 14x14 inch piles. The second day was spent securing six, eighteen foot long 6x12 inch timber spans. The third day was spent decking the bridge with 2x6 inch boards.

Skills emphasized: proper bridge and boardwalk construction, construction safety, teamwork, proper use of hand tools, and proper use of log tongs and carriers

Prescribed learning outcomes:

- describe the process, from start to finish, of constructing a footbridge or boardwalk
- describe the actions that must be taken to minimize the environmental impact of trail infrastructure installation

Timber Cruising Job Shadow

Partner organization: Kevin Stanczyk of the Teal Jones Group

Number of person hours: 7 hours (1 people x 7 hours)

Description of project: One student from the southern crew spent a day working with a Teal Jones professional forester performing a timber cruise.

Skills emphasized: basic surveying methods, GPS use, use of hip chain, use of a tree diameter tape, etc.

Check Scaling Job Shadow

Partner organization: Dave Crossly of the Ministry of Forests and Range

Number of person hours: 7 hours (1 people x 7 hours)

Description of project: One student from the southern crew spent a day working with a MFR scaler performing a check scale on the Alliford Bay dry land sort.

Skills emphasized: scaling theory, measuring but and end diameters and lengths of logs, & dry land sort safety.

VII. Student and Partner Evaluations

VIII. Student and Coordinator Time Sheets