

# SURVEY OF THE LICHEN-FORMING ASCOMYCETES FOUND AT THE 2016 NL FORAY

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Species (Authority) – Collectors/Determiners	Aspen	Mud Lake	Labrador Interpretation Center	Old Growth	Robin	Gosling View (Robin 2)	“OTHER”
<i>Agyrium rufum</i> (Pers.) Fr. – RTM/RTM			√				
<i>Alectoria sarmentosa</i> (Ach.) Ach. – CD&RTM/RTM	√	√	√	√			
<i>Arctoparmelia centrifuga</i> (L.) Hale – RTM/RTM	√					√	
<i>Arctoparmelia incurva</i> (Pers.) Hale – RTM/RTM						√	
<i>Aspicilia cinerea</i> (L.) Körber – RTM/RTM						√	
<i>Athallia pyracea</i> (Ach.) Arup, Frödén & Søchting – RTM/RTM							√
<i>Bacidia subincompta</i> (Nyl.) Arnold – RTM/RTM	√						
<i>Baeomyces rufus</i> (Hudson) Rebert. – RTM/RTM							√
<i>Biatora pycnidiata</i> Printzen & Tønsberg – RTM/RTM		√	√				
<i>Bilimbia sabuletorum</i> (Schreber) Arnold – RTM/RTM	√						
<i>Bryoria furcellata</i> (Fr.) Brodo & D. Hawksw. – AA&RTM/ AA&RTM			√		√		
<i>Bryoria fuscescens</i> (Gyelnik) Brodo & D. Hawksw. – AA&RTM/ AA&RTM			√		√	√	
<i>Bryoria nadvornikiana</i> (Gyelnik) Brodo & D. Hawksw. – AA&RTM/AA&RTM			√		√		
<i>Bryoria pikei</i> Brodo & D. Hawksw. – RTM/RTM			√		√		
<i>Bryoria simplicior</i> (Vainio) Brodo & D. Hawksw. – RTM/RTM							√
<i>Bryoria trichodes</i> ssp. <i>trichodes</i> (Michaux) Brodo & D. Hawksw. – RTM/RTM			√		√		
<i>Bryoria</i> sp. Brodo & D. Hawksw. – AA,CD&RTM/AA&RTM		√	√		√		
<i>Buellia arnoldii</i> Servít – RTM/RTM		√					
<i>Buellia erubescens</i> ( <i>Buellia stillingiana</i> ) Arnold – AA&RTM/ AA&RTM		√		√			
<i>Calicium salicinum</i> Pers. – AA&RTM/AA&RTM				√	√		
<i>Calicium trabinellum</i> (Ach.) Ach – RTM/RTM		√					
<i>Caloplaca cerina</i> (Ehrh. ex Hedwig) Th. Fr. – RTM/RTM							√
<i>Cetraria ericetorum</i> Opiz – RTM/RTM		√					√
<i>Chaenotheca brunneola</i> (Ach.) Müll. Arg. – RTM/AA&RTM		√		√			

Species (Authority) – Collectors/Determiners	Aspen	Mud Lake	Labrador Interpretation Center	Old Growth	Robin	Gosling View (Robin 2)	“OTHER”
<i>Chaenotheca chrysocephala</i> (Ach.) Th. Fr. – RTM/RTM			√				
<b><i>Chaenotheca ferruginea</i> (Turner ex Sm.) Mig. – RTM/AA&amp;RTM</b>				√			
<i>Chaenotheca furfuracea</i> (L.) Tibell – AA/AA				√			
<i>Chaenotheca trichialis</i> (Ach.) Th. Fr. – RTM/RTM			√				
<i>Chaenotheca xyloxena</i> Nád. – RTM/RTM		√					
<i>Chaenothecopsis marcineae</i> Selva – RTM/RTM			√				
<b><i>Chaenothecopsis pusilla</i> (Ach.) A.F.W. Schmidt – RTM/RTM</b>		√					
<i>Cladonia amaurocraea</i> (Ach.) Norrlin – RTM/RTM					√		
<i>Cladonia botrytes</i> (K. G. Hagen) Willd. – CD&RTM/RTM					√		√
<i>Cladonia cenotea</i> (Ach.) Schaerer – RTM/RTM			√	√			
<i>Cladonia chlorophaea</i> (Flörke ex Sommerf.) Sprengel – CD/RTM		√					
<i>Cladonia cornuta</i> (L.) Hoffm. – AA,CD&RTM/AA&RTM		√	√		√		√
<i>Cladonia crispata</i> (Ach.) Flotow – RTM/RTM		√	√				
<i>Cladonia cristatella</i> Tuck. – AA,CD&RTM/AA&RTM		√	√	√	√		
<i>Cladonia deformis</i> (L.) Hoffm. – RTM/RTM			√				
<i>Cladonia digitata</i> (L.) Hoffm. – RTM/RTM				√			
<i>Cladonia gracilis</i> ssp. <i>gracilis</i> (L.) Willd. – RTM/RTM						√	
<i>Cladonia gracilis</i> ssp. <i>turbinata</i> (Ach.) Ahti – RTM/RTM		√					√
<i>Cladonia macrophylla</i> (Schaerer) Stenh. – AA&RTM/RTM					√	√	√
<i>Cladonia maxima</i> (Asahina) Ahti – CD&RTM/RTM			√				
<i>Cladonia mitis</i> (Sandst.) Ruoss – AA&CD/AA&RTM		√			√		√
<i>Cladonia ochrochlora</i> Flörke – AA&RTM/AA&RTM			√	√			
<i>Cladonia pleurota</i> (Flörke) Schaerer – RTM/RTM				√			
<i>Cladonia rangiferina</i> (L.) F. H. Wigg. – AA,CD&RTM/AA&RTM		√	√		√		
<i>Cladonia scabriuscula</i> (Delise) Nyl. – RTM/RTM		√					
<i>Cladonia stellaris</i> (Opiz) Pouzar & Vězda – CD,MC&RTM/RTM			√				√
<i>Cladonia stygia</i> (Fr.) Ruoss – CD&RTM/RTM			√	√			
<i>Cladonia sulphurina</i> (Michaux) Fr. – RTM/RTM			√			√	
<i>Cladonia uncialis</i> (L.) Weber ex F. H. Wigg. – RTM/RTM			√		√		

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<i>Cladonia verticillata</i> (Hoffm.) Schaerer – AA&CD/AA&AV		√				√	
<i>Cladonia</i> sp. P. Browne – AA&CD/AA&RTM		√	√				
<i>Cystobasidium hypogymniicola</i> Diederich & Ahti – RTM/RTM			√		√		
<i>Dibaeis baeomyces</i> (L. f.) Rambold & Hertel – RTM/RTM							√
<i>Evernia mesomorpha</i> Nyl. – RTM/RTM			√		√		
<i>Flavocetraria nivalis</i> (L.) Kärnefelt & A. Thell – RTM/RTM					√		
<i>Hypogymnia bitteri</i> (Lyngé) Ahti – AA,CD&RTM/AA&RTM		√	√				
<i>Hypogymnia incurvoides</i> Rass. – RTM/RTM		√		√			
<i>Hypogymnia physodes</i> (L.) Nyl. – CD/RTM			√	√			
<b><i>Hypogymnia pulverata</i> (Nyl. ex Crombie) Elix – CD&amp;RTM/RTM</b>		√	√		√		
<i>Hypogymnia tubulosa</i> (Schaerer) Hav. – RTM/RTM		√					
<i>Hypogymnia vittata</i> (Ach.) Parrique – RTM/RTM				√			
<i>Icmadophila ericetorum</i> (L.) Zahlbr. – BF, RTM&MV/RTM&RGT		√	√		√		
<i>Imshaugia aleurites</i> (Ach.) S. F. Meyer – RTM/RTM			√				
<i>Lecanora intricata</i> (Ach.) Ach. – RTM/RTM					√	√	
<i>Lecanora polytropa</i> (Ehrh.) Rabenh. – RTM/RTM						√	
<i>Lecidea albofuscescens</i> Nyl. – RTM/RTM				√			
<i>Lepraria</i> sp. Ach. – AA/AA			√			√	
<b><i>Leptorhaphis epidermidis</i> (Ach.) Th. Fr. – RTM/RTM</b>		√					
<i>Lichenicolous fungi on Peltigera</i> sp. – CD		√					
<i>Lichenomphalia umbellifera</i> (L.:Fr.) Redhead, Lutzoni, Moncalvo & Vilgalys – BF, RLB&RGT /RLB&RGT		√			√		√
<i>Lobaria pulmonaria</i> (L.) Hoffm. – AA,GB, RTM&AV/AA, RTM, RGT&AV		√		√	√		√
<i>Lobaria scrobiculata</i> (Scop.) DC. – AA,CD&RTM/AA&RTM				√	√		
<i>Loxospora elatina</i> (Ach.) A. Massal. – AA&RTM/AA&RTM		√		√	√		
<i>Melanelia stygia</i> (L.) Essl. – RTM/RTM						√	
<i>Melanohalea septentrionalis</i> (Lyngé) O. Blanco et al. – RTM/RTM		√					
<i>Melanohalea trabeculata</i> (Ahti) O. Blanco et al. – RTM/RTM	√						
<i>Microcalicium conversum</i> Tibell – RTM/RTM			√				

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<i>Montanelia panniformis</i> (Nyl.) Divakar, A. Crespo, Wedin & Essl. – RTM/RTM						√	
<i>Multiclavula</i> sp. R. Petersen – RLB/RLB				√			√
<i>Mycoblastus sanguinarius</i> (L.) Norman – RTM/RTM			√				
<i>Mycocalicium subtile</i> (Pers.) Szatala – RTM/RTM				√			
<i>Nephroma arcticum</i> (L.) Torss. – AA, CD, MB&RTM/AA&RTM			√	√	√		√
<i>Nephroma bellum</i> (Sprengel) Tuck. – RTM/RTM	√				√		
<i>Nephroma parile</i> (Ach.) Ach. – RTM/RTM					√		
<i>Nephroma resupinatum</i> (L.) Ach. – RTM/RTM	√				√		
<b><i>Ochrolechia gowardia</i> Brodo – RTM/RTM</b>			√				
<i>Ochrolechia</i> sp. A. Massal. – AA/AA				√			
<i>Parmelia saxatilis</i> (L.) Ach. – RTM/RTM							√
<i>Parmelia squarrosa</i> Hale – AA,CD&GB/AA,RTM&AV		√	√				√
<i>Parmelia sulcata</i> Taylor – AA,CD&RTM/AA&RTM	√	√	√				
<i>Parmeliopsis ambigua</i> (Wulfen) Nyl. – AA&RTM/AA&RTM			√	√	√		
<i>Parmeliopsis capitata</i> R. C. Harris ex J. W. Hinds & P. L. Hinds – RTM/RTM		√					
<i>Parmeliopsis hyperopta</i> (Ach.) Arnold – AA&RTM/AA&RTM		√	√				
<i>Peltigera aphthosa</i> (L.) Willd. – AA, CD, GB&RTM/RTM&RGT		√	√	√			√
<i>Peltigera canina</i> (L.) Willd. – LB&RTM/RTM&AV			√				√
<i>Peltigera didactyla</i> (With.) J. R. Laundon – RTM/RTM		√					
<i>Peltigera extenuata</i> (Nyl. ex Vainio) Lojka – RTM/RTM		√					
<i>Peltigera horizontalis</i> (Hudson) Baumg. – RTM/RTM	√						
<i>Peltigera malacea</i> (Ach.) Funck – AA/AA			√				
<i>Peltigera neckeri</i> Hepp ex Müll. Arg. – CD/RTM		√					
<i>Peltigera neopolydactyla</i> (Gyelnik) Gyelnik – RTM/RTM		√	√				
<i>Peltigera polydactylon</i> (Necker) Hoffm. – CD/RTM		√		√			
<i>Peltigera rufescens</i> (Weiss) Humb. – RL&RTM/RTM							√
<i>Peltigera scabrosa</i> Th. Fr. – RTM/RTM		√	√				
<i>Pertusaria consocians</i> Dibben – RTM/RTM				√			
<i>Phaeocalicium compressulum</i> (Nyl. ex Vainio) A.F.W. Schmidt – RTM/RTM			√				
<b><i>Phaeocalicium flabelliforme</i> Tibell – RTM/RTM</b>			√				
<i>Phaeophyscia pusilloides</i> (Zahlbr.) Essl. – RTM/RTM	√						

Species (Authority) – Collectors/Determiners	Aspen	Mud Lake	Labrador Interpretation Center	Old Growth	Robin	Gosling View (Robin 2)	“OTHER”
<i>Physcia aipolia</i> var. <i>aipolia</i> (Ehrh. ex Humb.) Fürnr. – RTM/RTM							√
<i>Placynthiella oligotropha</i> (J. R. Laundon) Coppins & P. James – RTM/RTM						√	
<i>Platismatia glauca</i> (L.) W. L. Culb. & C. F. Culb. – CD&RTM/RTM		√	√	√			
<i>Protopannaria pezizoides</i> (Weber) P. M. Jørg. & S. Ekman – RTM/RTM	√						
<b><i>Pseudophebe minuscula</i> (Nyl. ex Arnold) Brodo &amp; D. Hawksw. – RTM/RTM</b>						√	
<i>Ramalina dilacerata</i> (Hoffm.) Hoffm. – RTM/RTM		√					
<i>Rhizocarpon</i> sp. Ramond ex DC. – RTM/RTM						√	
<i>Sarea resiniae</i> (Fr.) Kuntze – RTM/RTM			√				
<b><i>Scytinium tenuissimum</i> (Dickson) Otálora, P. M. Jørg. &amp; Wedin – RTM/RTM</b>	√						
<b><i>Scytinium teretiusculum</i> (Wallr.) Otálora, P. M. Jørg. &amp; Wedin – RTM/RTM</b>	√						
<i>Stenocybe major</i> Nyl. ex Körber – RTM/RTM		√					
<i>Stenocybe pullatula</i> (Ach.) Stein – RTM/RTM		√					
<i>Stereocaulon condensatum</i> Hoffm. – RTM/RTM						√	
<i>Stereocaulon paschale</i> (L.) Hoffm. – CD&RTM/RTM						√	√
<i>Stereocaulon tomentosum</i> Fr. – RTM/RTM		√	√			√	
<i>Trapeliopsis granulosa</i> (Hoffm.) Lumbsch – RTM/RTM						√	
<i>Tuckermannopsis americana</i> (Sprengel) Hale – AA&RTM/AA&RTM					√	√	
<i>Tuckermannopsis</i> sp. Gyelnik – CD/RTM			√				
<i>Umbilicaria hyperborea</i> (Ach.) Hoffm. – RTM/RTM						√	√
<i>Umbilicaria muhlenbergii</i> (Ach.) Tuck. – RTM/RTM						√	
<i>Umbilicaria proboscidea</i> (L.) Schrader – RTM/RTM					√		
<i>Umbilicaria torrefacta</i> (Lightf.) Schrader – RTM/RTM						√	
<i>Usnea</i> sp. Dill. ex Adanson, CD/RTM			√				
<i>Variolaria amara</i> Ach. – RTM/RTM	√			√			
<i>Variolaria ophthalmiza</i> (Nyl.) Darb. – RTM/RTM		√					√
<i>Vulpicida pinastri</i> (Scop.) J.-E. Mattsson & M. J. Lai – AA,CD&RTM/AA,RTM		√	√		√		
<i>Xylographa parallela</i> (Ach.:Fr.) Fr. – RTM/RTM			√				

\*Bold indicates new record to province.

Initials: AA = André Arsenault, GB = Glynn Bishop, MB = Michael Burzynski, LB = Leanna Butters, MC = Michael Curran, CD = Chris Deduke, BF = Betty Anne Fequet, RLB = Renée Lebeuf, RL = Roz Lowen, RTM = Troy McMullin, RGT = Greg Thorn, AV = Andrus Voitk, MV = Maria Voitk.

### **Breakdown of “Other” Trails**

**Base Perimeter 1:** *Cladonia botrytes*.

**Birch Brook Trail:** *Lichenomphalia umbellifera*.

**Bunker:** *Peltigera canina*, *Peltigera rufescens*.

**Halfway Point:** *Nephroma arcticum*.

**Legion:** *Athallia pyracea*, *Caloplaca cerina*, *Physcia aipolia* var. *aipolia*

**Loppet Trail:** *Cladonia mitis*, *C. stellaris*, *Stereocaulon paschale*.

**Motel North:** *Dibaeis baeomyces*.

**Natural Resources Yard:** *Peltigera rufescens*.

**Rabbit Trail:** *Cladonia stellaris*, *Lobaria pulmonaria*, *Parmelia squarrosa*, *Peltigera aphthosa*.

**Ski Club (Home Base):** *Lichenomphalia umbellifera*.

**Summit Trail:** *Baeomyces rufus*, *Bryoria simplicior*, *Cetraria ericetorum*, *Cladonia cornuta*, *C. gracilis* ssp. *turbinata*, *C. macrophylla*, *Parmelia saxatilis*, *Stereocaulon paschale*, *Umbilicaria hyperborea*.

**Tranquility Trail:** *Lichenomphalia umbellifera*.

A rich lichen biota was discovered in the Happy Valley-Goose Bay region of Labrador during Foray 2016. We identified 117 species of lichens and 11 non-lichenized allied fungi from 267 specimens. Eight specimens were only identified to genus. Nine species are new provincial records: *Chaenotheca ferruginea*, *Chaenothecopsis pusilla*, *Hypogymnia pulverata*, *Leptorhaphis epidermidis*, *Ochrolechia gowardia*, *Phaeocalicium flabelliforme*, *Pseudephebe minuscula*, *Scytinium tenuissimum* and *Scytinium teretiusculum*. Twenty-four species are members of the genus *Cladonia*. Twenty-two species have cyanobacteria as their primary photobiont: 2 species of *Lobaria*, 3 *Nephroma* species, 11 *Peltigera* species, *Protopannaria pezizoides*, 2 *Scytinium* species and 3 species of *Stereocaulon*. Seventeen species are calicioids: 2 species of *Calicium*, 6 *Chaenotheca* species, 2 *Chaenothecopsis* species, *Microcalicium conversum*, *Mycocalicium subtile*, 3 species of *Phaeocalicium* and 2 species of *Stenocybe*). Saxicolous lichens were the least collected, which was likely due to a lack of exposed rock at the foray locations. The number of identified species discovered on each trail is shown in Figure 1.

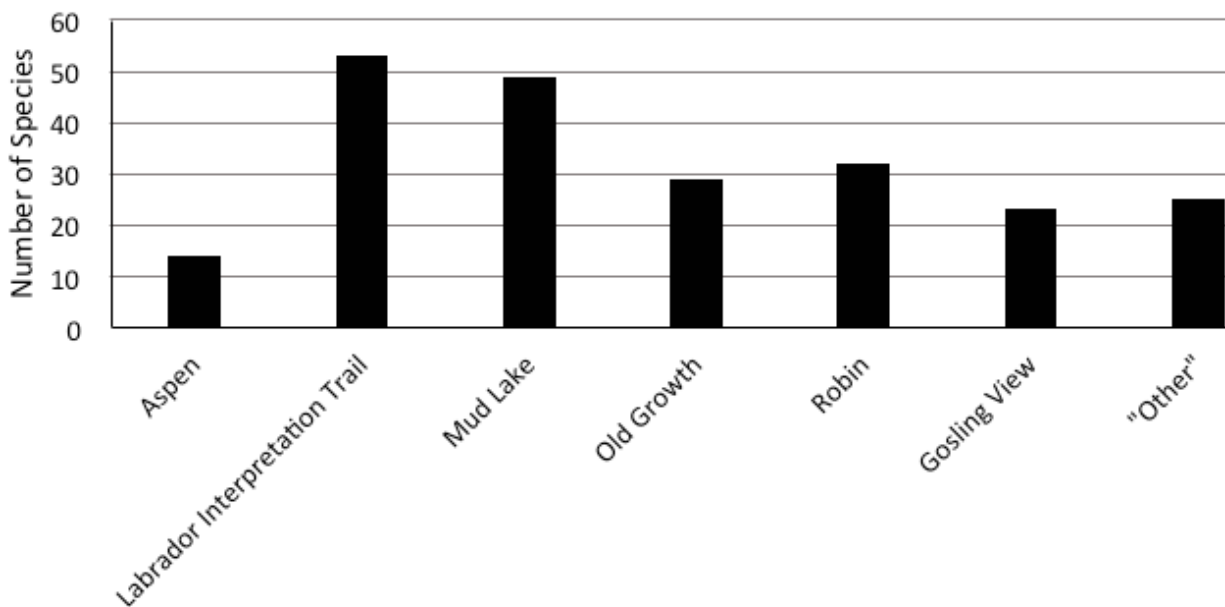


Figure 1. Number of identified lichens and non-lichenized allied fungi found at different Foray 2016 locations. For a record of “Other” trails and their species, please see Breakdown of “Other” Trails following species list.



## Aspen

Aspen is a mixed-wood balsam poplar (*Populus balsamifera*) stand located east of Happy Valley-Goose Bay. It was a productive stand with an overstory of balsam poplar, paper birch (*Betula papyrifera*), and conifers adjacent to dry lichen woodland habitat. Cyanolichens were the most abundant with six species collected including *Scytinium tenuissimum* and *S. teretiusculum*. Other genera of cyanolichens included *Nephroma*, *Peltigera*, and *Protopannaria*. Fourteen species were discovered at this site despite a small amount of time spent collecting.

## Mud Lake

The forests surveyed around the community of Mud Lake are regenerating following harvest and severe spruce budworm defoliation. Tree species included balsam fir (*Abies balsamea*), paper birch, and some spruce (*Picea*) with an understory of alder (*Alnus*). Ground cover is predominantly *Cladonia* and *Peltigera* species. *Chaenothecopsis pusilla*, *Hypogymnia pulverata*, and *Leptorhaphis epidermidis* were found at this site. The second highest number of species were collected at Mud lake (49).



Ground cover of *Cladonia* and *Peltigera* species. *Lichenomphalia umbellifera* growing on a stump. Photos Chris Deduke.

## Labrador Interpretation Trail

The Labrador Interpretation Trail is located in North West River. It is a second-growth forest dominated by black spruce (*Picea mariana*), paper birch, and balsam fir. Patterns of tree growth rings at the site suggest that a large portion of the forest was disturbed in the mid-1950's, probably due to logging. Many of the black spruce trees were suppressed in the understory at the time of the disturbance and can be up to 130 years old. *Bryoria* species were abundant on the old black spruce trees. *Hypogymnia pulverata* was found growing on black spruce and balsam fir. *Orchrolechia gowardii* and *Phaeocalicium flabelliforme* grew on paper birch. Among the ground dwelling species, *Nephroma articum* was particularly abundant in this forest, growing in large clusters. Fifty-three species were discovered at this site, which is the highest of any of the sites.





Second growth spruce forest covered in *Byroria* species. *Nephroma arcticum* thallus. Photos André Arsenault.

### Old Growth

This site is an old-growth forest located south of Happy Valley - Goose Bay. The stand is dominated by old black spruce and balsam fir with some paper birch and white spruce (*Picea glauca*). The forest is estimated to be over 200 years old and has many signs of small-scale disturbances producing snags and downed wood. Most of the species collected here were epiphytic on bark or lignin with the exception of species belonging to *Cladonia* and *Peltigera*. A notable collection for this site was the lichenized calicioid *Chaenotheca ferruginea*. Twenty-nine species were collected from the ‘Old Growth’ site.



Old growth spruce forest. *Hypogymnia bitteri* thallus on spruce. Photos André Arsenault.

### Robin

Robin’s Route is a trail at the Birch Brook Nordic Ski Lodge. This second growth spruce forest traversed a stream that was surrounded by an abundance of willow (*Salix*). The humidity from the stream provided good habitat for cyanolichens with collections of numerous *Lobaria* and *Nephroma* species. A third collection of *Hypogymnia pulverata* was made on this trail. Similar to the Labrador Interpretation Trail, the second growth spruce trees proved to be a suitable substrate for a variety of *Bryoria* species. Thirty-two species were collected at this site.



## Gosling View (Robin 2)

Gosling View, or Robin's Route 2, is another trail at the Birch Brook Nordic Ski Lodge. This site was unique because it was one of the few locations to have rock outcrops, which were colonized by several saxicolous lichens. A more scenic trail, this location was farther up the hill behind the ski lodge, overlooking the area. The collection site was granitic rock dominated by boreal outcrop lichens including species of *Arctoparmelia*, *Stereocaulon*, and *Umbilicaria*. Surrounding the rock face was a mixture of mosses and *Cladonia* species along with the occasional spruce tree. Below the clearing was the spruce forest and Robin's Route trail. The species new to the province from this site was *Pseudephebe minuscula*. Twenty-three species were collected from this location.



View from Gosling View trail. Thallus of *Arctoparmelia centrifuga*. Photos André Arsenault.

In summary, the Goose Bay foray collection included 117 species of lichens and 11 species of non-lichenized allied fungi. The Labrador Interpretation Trail was the richest collection site with 53 species followed by Mud Lake with 49. *Cladonia* was the most diverse genus of lichen with 24 species, while *Peltigera* was the most diverse cyanolichen with 11 species. Nine new records were made for Newfoundland at this foray. These included *Chaenotheca ferruginea*, *Chaenothecopsis pusilla*, *Hypogymnia pulverata*, *Leptorhaphis epidermidis*, *Ochrolechia gowardia*, *Phaeocalicium flabelliforme*, *Pseudephebe minuscula*, *Scytinium tenuissimum* and *S. teretiunculum*.