

Auckland Anniversary Weekend at Mokau

30th January – 1st February 2021

Thomas Emmitt

For this year's Auckland Anniversary trip a group of keen botanists headed to the south-western end of the Waikato Region and ventured across the borders into Taranaki to explore some coastal botany. As it turned out not only was the trip exploring the southern limits of the Waikato region but the whole theme of the trip turned out to be 'southern limits', as many species reach their southern extent around the Mokau area.



Inspecting the *Triglochin striata* – Mokau River

On the Saturday, our first visit was to Tainui Scenic Reserve, home to the largest remnant population of tainui (*Pomaderris apetala* subsp. *maritima*). Tainui is critically endangered in New Zealand but is secure in Australia growing in Victoria and Tasmania. Tainui Scenic Reserve is one of three remaining sites in NZ where tainui still grows naturally, the other sites being the Mohakatino Swamp which we visited on the Sunday, and a small isolated patch on private land about 1 km down the road from Tainui S.R.

The reserve is a long, narrow strip that runs up to a large pa site at its eastern end and is broken into three blocks of original tainui-dominated forest, planted tainui forest and remnant coastal forest (*Myoporum laetum*, *Olearia albida* and *Vitex lucens*) mixed with gorse (*Ulex europaeus*). Since I had last visited 5-6 years ago, the understory, consisting of hangehange (*Geniostoma ligustrifolium* var. *ligustrifolium*) thickets was recovering well having previously been wrecked by continual goat browse. The other noticeable change was the decrease in Arum lily (*Zantedeschia aethiopicum*) in the tainui blocks. This was once the dominant groundcover but is now only sparsely dispersed, although there are still large patches under the coastal forest and on the neighbouring farms.

An attempt was made to reach the summit of the reserve and the pa site, but we were thwarted by the thick gorse, having expected the now-absent goats to have cleared us a path. So lunch was called in the shade of some remnant podocarps.

Of note in the reserve was a patch of *Pulicaria dysenterica* (common fleabane) growing in an artificial pond (thanks John Hobbs and Colin Ogle for the ID!), which had been seen on a previous Anniversary weekend trip to Awakino but not identified. Common fleabane has limited distribution in New Zealand, only having one record from Northland on iNaturalist and otherwise only mentioned in a NZ Plant Protection Society research note that describes its distribution as southern Wairarapa. This find was outside of its known range and a herbarium specimen was taken and lodged in Rotorua.

After lunch we ambled back to the campground to settle in, then regrouped for an afternoon stroll along the banks of the Mokau River while the tide was out, which took us down the Te Kauri Walk to the old Mokau Co-Operative Dairy Factory (opened in 1921) and west out to the 'Flower Pots' (sandstone rock formations along the banks of the river).

The Te Kauri Walk was dominated by climbing asparagus (*Asparagus scandens*) which formed a very dense groundcover along with other weeds such as montbretia (*Crocasmia x crocosmiiflora*) and *Plectranthus ciliatus* and amongst the weeds we were very surprised to find several king fern (*Ptisana salicina*) growing along the edge of the walkway which some think may have been planted.

The coastline continued to be weedy, with regular sightings of species such as Kahili ginger (*Hedychium gardnerianum*), wandering Jew (*Tradescantia fluminensis*), velvet groundsel (*Roldana petasitis*), and licorice plant (*Helichrysum petiolare*). But

as we moved further downstream the botany became more interesting along the sandstone cliffs and seeps. The cliff faces carried a mix of coastal species such as sea primrose (*Samolus repens* var. *repens*), remuremu (*Selliera radicans*) and freshwater



Marchantia macropora at Three Sisters

plants such as pondweed (*Lemna disperma*) growing in the seeps under overhanging *Machaerina sinclairii*. Interesting finds along the cliff were dense patches of a magnificent liverwort *Marchantia macropora* which dominated the coastal seeps, a small patch of *Triglochin striata*, patches of renga lily (*Arthropodium cirratum*) and as we were walking home our final find of the day was shore hard fern

(*Austroblechnum banksii*) formerly *Blechnum blechnoides*.

We also had our first conversation on southern limits as we remarked that we hadn't seen any houpara (*Pseudopanax lessonii*) which reaches its southern limit along the northern Taranaki coast. We had seen some plants that looked as though they may have been *P. lessonii* x *crassifolius* but no definite *P. lessonii*.

On Sunday (Day two) we headed out to explore the Mohakatino wetland on the northern side of the Mohakatino River (also the location of the second largest population of *Pomaderris apetala* subsp. *maritima*). The site consists of a wide variety of habitats including *Bolboschoenus*-dominated wetland, duneland, coastal herbfield, coastal forest and manuka/*Machaerina* wetland so we were kept busy.

The first interesting but unfortunate find for the day was a small patch of Yellow Flag Iris (*Iris pseudacorus*) spotted from the road, which has since been reported to the New Plymouth DOC office. The yellow flag was growing amongst dense swards of *Bolboschoenus* making it hard to see. The other weed commonly growing at this site was *Alnus glutinosa*, which had previously been sprayed but were starting to sprout again from the base.

From the road we walked downstream to the river mouth into some of the dunelands dominated by marram grass (*Ammophila arenaria*) and wiwi (*Ficinia nodosa*) with shore bindweed (*Calystegia soldanella*) and sand sedge (*Carex pumila*)

growing along the edge of the river. Several isolated *Agapanthus praecox* plants were spotted growing along the river edge along with large numbers of Japanese Walnut (*Juglans ailantifolia*) seedlings. Formosan lily (*Lilium formosanum*) was also common in the dunes.

Further along the coast we were excited to come across a small herbfield on the leeward side of some coastal cliffs. The herbfield was dominated by glasswort (*Salicornia quinqueflora*), horokaka (*Disphyma australe* subsp. *australe*) and *Samolus repens* with one small patch of *Triglochin striata* poking through.



The coastal herbfield

It was at this point that we had the second of our discussions on southern limits, as we spotted an *Austroderia* on the cliffs. Along this section of coast there are three possibilities: *Austroderia fulvida*, *Austroderia toetoe* which reaches its northern limit around Raglan and *Austroderia splendens* which reaches its southern limit around Waikawau. As it turned out ours was *A. fulvida* distinguished by the lack of hairs above the ligule.



Overlooking the Mohakatino Swamp

From the herbfield we headed over into the section of wetland dominated by manuka, *Sphagnum* and *Machaerina teretifolia*. Once we were there we were very pleased to see species such as maru (*Sparganium subglobosum*), *Epilobium insulare* and waoriki (*Ranunculus amphitrichus*) but not so stoked to find the wetland infested with royal fern (*Osmunda regalis*) and grey willow (*Salix cinerea*), which if not controlled soon will totally take over the wetland.

After lunch in the shade of the tainui trees we spent the rest of the afternoon skirting the cliffs around the wetland looking for ways to get back down with no luck. After we left the site some folks headed off to familiarise themselves with myrtle rust while others had a brief foray into one of the Mokau River Scenic Reserves but quickly decided it would be best left for another day so we decided to head back to camp to chill and swim till dinner.

After dinner we all headed out to the Mokau Cemetery to look at a known population of *Veronica speciosa* which was still in flower! Very beautiful! The plants that we found all looked to be in healthy condition, but the site was rapidly being taken over by kikuyu grass (*Cenchrus clandestinus*) and several plants had been taken over since my last visit. Another plant taking over the coastal cliffs at this site was karo (*Pittosporum crassifolium*), another species that reaches its southern limit just down the road from Mohakatino at Whitecliffs.

Our final day took us down to the Three Sisters at the mouth of Tongapurutu River. The habitat was very similar to the coastal cliffs of the Mokau River with many seeps and caves. Species of note along the cliffs were one plant of *Linum monogynum* var. *monogynum*, *Lilaeopsis novae-zelandiae* and again large patches of *Marchantia macropora*, my favourite liverwort.

And on a final southern limit note – we thought we had found *Austroderia splendens* outside of its recorded range but alas with further inspection it was found to be *Austroderia toetoe*.

Thank you to the group who came all the way down and made it another amazing Anniversary Weekend trip!

Tainui Scenic Reserve species list

Author(s): John Hobbs, Thomas Emmitt, Paul Cashmore & Kerry Jones

Date: 30th January 2021; Map: 38.6870°S 174.620°E; Altitude: 24–138 m

* = exotic

Gymnosperm trees

Dacrydium cupressinum
Dacrycarpus dacrydioides
**Pinus radiata*

Monocotyledonous trees and shrubs

Cordyline australis
Rhopalostylis sapida

Dicotyledonous trees and shrubs

Alectryon excelsus subsp. *excelsus*
Coprosma autumnalis
Coprosma robusta
Corokia cotoneaster
Corynocarpus laevigatus
**Elaeagnus x reflexa*
Entelea arborescens
**Eriobotrya japonica*
Geniostoma ligustrifolium var.
ligustrifolium
Griselinia lucida
Hedycarya arborea
Leucopogon fasciculatus
Leptospermum scoparium
Melicope ternata
Melicytus ramiflorus subsp.
ramiflorus
Myoporum laetum
Myrsine australis
Olearia albida
Piper excelsum subsp. *excelsum*
Pomaderris apetala subsp. *maritima*
Pseudopanax crassifolius
**Ulex europaeus*
Vitex lucens

Monocotyledonous lianes

Freycinetia banksii
Ripogonum scandens

Dicotyledonous lianes and related trailing plants

Calystegia sepium subsp. *roseata*
Calystegia tuguriorum
Metrosideros diffusa

Metrosideros perforata
Muehlenbeckia australis
Muehlenbeckia complexa var.
complexa
Parsonsia capsularis var. *capsularis*
Parsonsia heterophylla

Ferns

Adiantum cunninghamii
Adiantum viridescens
Asplenium flaccidum
Austroblechnum lanceolatum
Cranfillia fluviatilis
Cyathea cunninghamii
Cyathea dealbata
Cyathea medullaris
Deparia petersenii subsp. *congrua*
Dicksonia fibrosa
Dicksonia squarrosa
Diplazium australe
Doodia australis
Hypolepis ambigua
Icarus filiformis
Paesia scaberula
Pneumatopteris pennigera
Pteridium esculentum
Pteris macilenta
Pteris tremula
Pyrrhosia elaeagnifolia
Zealandia pustulata subsp. *pustulata*

Orchids

Earina mucronata
Pterostylis sp.

Grasses

**Agrostis capillaris*
**Agrostis stolonifera*
Austroderia fulvida
**Anthoxanthum odoratum*
**Cortaderia selloana*
**Cenchrus clandestinus*
**Dactylis glomerata*
**Holcus lanatus*
Microlaena stipoides

Oplismenus hirtellus subsp. *imbecillis*

**Paspalum dilatatum*

Poa anceps

Sedges

Carex dissita

Carex echinata

Carex uncinata

Carex virgata

Gahnia lacera

Machaerina sinclairii

Rushes and allied plants

Ficinia nodosa

Juncus edgariae

Juncus pauciflorus

Remaining Monocotyledonous herbs

Astelia hastata

Astelia solandri

Phormium tenax

**Zantedeschia aethiopica*

Daisy-like herbs

**Cirsium arvense*

**Cirsium vulgare*

**Erigeron sumatrensis*

**Gamochaeta coarctata*

**Hypochaeris radicata*

Lagenophora pumila

**Leontodon saxatilis*

**Pulicaria dysenterica*

**Senecio bipinnatisectus*

**Sonchus oleraceus*

**Taraxacum officinale* agg.

Dicotyledonous herbs other than Daisies

**Anagallis arvensis* subsp. *arvensis*

var. *arvensis*

Centella uniflora

**Daucus carota*

**Digitalis purpurea*

**Galium aparine*

**Galium palustre* subsp. *palustre*

Geranium homeanum

**Geranium robertianum*

**Gunnera tinctoria*

Haloragis erecta subsp. *erecta*

**Lepidium didymum*

**Lotus pedunculatus*

**Lotus suaveolens*

**Myosotis laxa* subsp. *caespitosa*

**Persicaria hydropiper*

**Persicaria lapathifolia*

**Physalis peruviana*

**Phytolacca octandra*

**Plantago lanceolata*

**Plantago major*

**Prunella vulgaris*

**Ranunculus repens*

Solanum americanum

**Stachys sylvatica*

**Stellaria media* subsp. *media*

Wahlenbergia violacea

Three Sisters

Author(s): John Hobbs, Thomas Emmitt, Paul Cashmore & Kerry Jones

Date: 1st February 2021; Map: 38.8166°S 174.5873°E; Altitude: 1–20 m

* = exotic

Monocotyledonous trees

Cordyline australis

Dicotyledonous trees and shrubs

**Banksia integrifolia*

Brachyglottis repanda

Coprosma repens

Coprosma robusta

Coriaria arborea var. *arborea*

Corynocarpus laevigatus

Dodonaea viscosa

Geniostoma ligustrifolium var. *ligustrifolium*

**Juglans ailantifolia*

Leptospermum scoparium

Leucopogon fasciculatus

Litsea calicularis

**Lupinus arboreus*

**Lycium ferocissimum*

Melicope ternata

Melicytus ramiflorus subsp. *ramiflorus*
Metrosideros excelsa
Myrsine australis
Ozothamnus leptophyllus
Piper excelsum subsp. *excelsum*
Pittosporum crassifolium
Pseudopanax arboreus
**Salix fragilis*
Sophora microphylla
**Ulex europaeus*
Veronica stricta var. *stricta*
Vitex lucens

Monocotyledonous lianes

Freycinetia banksii

Dicotyledonous lianes and related trailing plants

Calystegia sepium subsp. *roseata*
Calystegia soldanella

Ferns

Adiantum cunninghamii
Asplenium oblongifolium
Austroblechnum lanceolatum
Cyathea medullaris
Hypolepis ambigua
Parablechnum novae-zelandiae
Zealandia pustulata subsp. *pustulata*

Orchids

Corybas orbiculatus
Thelymitra longifolia

Grasses

**Ammophila arenaria*
Austroderia fulvida
Austroderia toetoe
Cenchrus clandestinus
**Dactylis glomerata*
**Holcus lanatus*
**Lachnagrostis billardierei* subsp. *billardierei*
**Lolium arundinaceum* subsp. *arundinaceum*
**Lolium perenne*
Microlaena stipoides
**Paspalum distichum*
Poa anceps

Sedges

Bolboschoenus fluviatilis
Carex geminata
Carex pumila

Cyperus ustulatus
Machaerina sinclairii
Spinifex sericeus

Rushes and allied plants

Apodasmia similis
Ficinia nodosa
Isolepis cernua var. *cernua*
Isolepis prolifera

Remaining Monocotyledonous herbs

Lemna disperma
Phormium cookianum subsp. *hookeri*
Phormium tenax
**Zantedeschia aethiopica*

Daisy-like herbs

Anaphalioides trinervis
**Cirsium vulgare*
**Erigeron sumatrensis*
**Hypochaeris radicata*
**Leontodon saxatilis*
**Sonchus oleraceus*
**Symphyotrichum subulatum*

Dicotyledonous herbs other than Daisies

**Anagallis arvensis*
Apium prostratum subsp. *prostratum* var. *filiforme*
Dichondra repens
Disphyma australe subsp. *australe*
Haloragis erecta subsp. *erecta*
Lilaeopsis novae-zelandiae
Linum monogynum
Lobelia anceps
**Lotus pedunculatus*
**Ludwigia palustris*
**Lycopus europaeus*
**Myosotis laxa* subsp. *caespitosa*
**Nasturtium officinale*
Nertera depressa
**Persicaria hydropiper*
**Physalis peruviana*
*Phytolacca octandra**
Pseudognaphalium luteoalbum
Samolus repens
Salicornia quinqueflora subsp. *quinqueflora*
Selliera radicans
Solanum americanum
Tetragonia tetragonoides

Mohakatino river mouth wetland and forest

Author(s): John Hobbs, Thomas Emmitt, Paul Cashmore, Catherine Beard & Kerry Jones

Date: 31st January 2021; Map: 38.7297°S 174.6116°E; Altitude: 1–40 m

* = exotic

Gymnosperm trees & shrubs

Dacrycarpus dacrydioides

**Pinus radiata*

Monocotyledonous trees and shrubs

Cordyline australis

Rhopalostylis sapida

Dicotyledonous trees and shrubs

**Alnus glutinosa*

**Banksia integrifolia*

Beilschmiedia tawa

**Bellardia viscosa*

Brachyglottis repanda var. *repanda*

Coprosma repens

Coprosma robusta

Corynocarpus laevigatus

Dysoxylum spectabile

Entelea arborescens

Geniostoma ligustrifolium var. *ligustrifolium*

Griselinia lucida

Hedycarya arborea

**Helminthotheca echioides*

Juglans ailantifolia

Knightia excelsa

Leptospermum scoparium

Litsea calicaris

**Lupinus arboreus*

Melicope ternata

Melicytus ramiflorus subsp. *ramiflorus*

Metrosideros excelsa

Myoporum laetum

Olearia albida

**Paraserianthes lophantha*

Piper excelsum subsp. *excelsum*

Pomaderris apetala subsp. *maritima*

Rhabdothamnus solandri

**Rubus fruticosus*

**Salix cinerea*

**Salix fragilis*

**Ulex europaeus*

Vitex lucens

Monocotyledonous lianes

Freycinetia banksii

Ripogonum scandens

Dicotyledonous lianes and related trailing plants

Calystegia sepium subsp. *roseata*

Calystegia soldanella

Calystegia tuguriorum

Metrosideros excelsa

Metrosideros perforata

Muehlenbeckia complexa

Ferns

Adiantum hispidulum

Asplenium oblongifolium

Asplenium bulbiferum

Asplenium flaccidum subsp. *flaccidum*

Asplenium polyodon

Austroblechnum lanceolatum (*Blechnum chambersii*)

Cyathea dealbata

Cyathea medullaris

Dendroconche scandens

Dicksonia squarrosa

Doodia australis

Hymenophyllum demissum

Hypolepis ambigua

Icarus filiformis (*Blechnum filiforme*)

**Osmunda regalis*

Parablechnum minus (*Blechnum minus*)

Polystichum wawranum

Pteridium esculentum

Pteris macilentia

Pteris tremula

Pyrrosia elaeagnifolia

Zealandia pustulata subsp. *pustulata*

Orchids

Thelymitra sp

Grasses

Ammophila arenaria

Anthoxanthum odoratum

Austroderia fulvida

**Briza media*

**Cenchrus clandestinus*

**Cortaderia selloana*

**Dactylis glomerata*
**Holcus lanatus*
Isachne globosa
**Lolium arundinaceum* subsp.
arundinaceum
Microlaena stipoides
Oplismenus hirtellus subsp. *imbecillis*
**Paspalum dilatatum*
**Paspalum distichum*
Spinifex sericeus
**Sporobolus africanus*
**Stenotaphrum secundatum*
Typha orientalis

Sedges

Bolboschoenus fluviatilis
Carex flagellifera
Carex geminata
Carex maorica
Carex pumila
Carex 'raotest'
Carex secta
Carex uncinata
Carex virgata
**Cyperus congestus*
Cyperus ustulatus
Gahnia lacera

Rushes and allied plants

Apodasmia similis
Eleocharis acuta
Ficinia nodosa
Isolepis cernua
Isolepis prolifera
**Juncus articulatus*
**Juncus bufonius* var. *bufonius*
Juncus pallidus
Juncus planifolius
**Juncus tenuis* subsp. *tenuis*
Machaerina teretifolia

Remaining Monocotyledonous herbs

**Agapanthus praecox* subsp. *orientalis*
**Aloe arborescens*
**Iris pseudacorus*
**Lilium formosanum*
Phormium tenax
Sparganium subglobosum
Triglochin striata
Typha orientalis

Daisy-like herbs

**Bidens frondosa*
**Cirsium arvense*
**Cirsium vulgare*
**Erigeron sumatrensis*
**Hypochaeris radicata*
**Leontodon saxatilis*
**Picris hieracioides*
Senecio bipinnatisectus
**Sonchus oleraceus*
**Symphyotrichum subulatum* (*Aster subulatus*)

Dicotyledonous herbs other than Daisies

**Anagallis arvensis* subsp. *arvensis*
Apium prostratum subsp. *prostratum* var.
filiforme
**Atriplex prostrata*
Callitriche petriei subsp. *petriei*
Centella uniflora
**Cerastium fontanum* subsp. *fontanum*
**Digitalis purpurea*
Drosera binata
Disphyma australe subsp. *australe*
Elatostema rugosum
Epilobium insulare
Epilobium pallidiflorum
**Foeniculum vulgare*
**Galium palustre*
Haloragis erecta subsp. *erecta*
Hydrocotyle heteromeria
**Lactuca serriola*
Lobelia anceps
**Lotus pedunculatus*
**Lotus suaveolens*
**Ludwigia palustris*
**Lycium ferocissimum*
**Lycopus europaeus*
**Myosotis laxa* subsp. *caespitosa*
Nertera depressa
**Parentucellia viscosa*
**Persicaria maculosa*
**Physalis peruviana*
**Phytolacca octandra*
Ranunculus amphitrichus
**Ranunculus repens*
**Rumex conglomeratus*
**Rumex sagittatus*
Samolus repens

Sarcocornia quinqueflora subsp. *quinqueflora*
Selliera radicans
Solanum americanum
**Solanum mauritianum*

**Stachys sylvatica*
Tetragonia tetragonioides
**Trifolium repens*
**Verbena bonariensis*

Mokau River – Dairy Factory to Flowerpots

Author(s): Thomas Emmitt, Paul Cashmore, Kerry Jones & Catherine Beard

Date: 30th January 2021; Map: 174 37 23.50040 E 38 42 03.05887 S; Altitude: 0 m

* = exotic

Gymnosperm trees & shrubs

**Cupressus macrocarpa*
**Pinus radiata*

Dicotyledonous trees and shrubs

Brachyglottis repanda
**Buddleja davidii*
**Chamaecytisus palmensis*
Coprosma repens
Coprosma robusta
Coriaria arborea var. *arborea*
Corynocarpus laevigatus
Dysoxylum spectabile
Entelea arborescens
Geniostoma ligustrifolium var. *ligustrifolium*
**Helichrysum petiolare*
**Hydrangea macrophylla*
**Lupinus arboreus*
Melicytus ramiflorus subsp. *ramiflorus*
Metrosideros excelsa
**Paraserianthes lophantha*
Piper excelsum subsp. *excelsum*
Pittosporum crassifolium
**Roldana petasitis*
Veronica stricta var. *stricta*

Monocotyledonous lianes

**Asparagus scandens*

Dicotyledonous lianes and related trailing plants

**Convolvulus arvensis*
Metrosideros diffusa
Muehlenbeckia complexa var. *complexa*

Ferns

Adiantum cunninghamii
Asplenium flaccidum
Asplenium oblongifolium

Austroblechnum banksii
Austroblechnum lanceolatum
Cranfillia fluviatilis
Cyathea medullaris
Paesia scaberula
Parablechnum novae-zelandiae
Pneumatopteris pennigera
Pteris tremula
Pyrrosia elaeagnifolia

Orchids

Earina mucronata

Grasses

Austroderia fulvida
**Anthoxanthum odoratum*
**Cortaderia selloana*
**Cenchrus clandestinus*
**Holcus lanatus*
**Paspalum dilatatum*
Poa anceps

Sedges

Machaerina sinclairii

Rushes and allied plants

Apodasmia similis

Remaining Monocotyledonous herbs

Arthropodium cirratum
Astelia hastata
Astelia solandri
**Crocasmia x crocosmiiflora*
**Hedychium gardnerianum*
Lemna disperma
Phormium tenax
**Tradescantia fluminensis*
Triglochin striata

Daisy-like herbs

**Erigeron sumatrensis*

**Hypochaeris radicata*

Dicotyledonous herbs other than Daisies

Apium prostratum subsp. *prostratum*

var. *filiforme*

Epilobium pedunculare

Haloragis erecta subsp. *erecta*

Hydrocotyle heteromeria

Lobelia anceps

**Nasturtium officinale*

**Physalis peruviana*

**Phytolacca octandra*

**Plantago lanceolata*

**Rumex acetosella*

Salicornia quinqueflora

Samolus repens var. *repens*

Selliera radicans

Tetragonia tetragonoides

**Trifolium repens*

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## **Okareka mistletoe restoration project**

### **Weed control/plant releasing work day for 2021**

Come and join Rotorua Botanical Society to control weeds threatening mistletoe sites and plant new host trees. Activities will involve hand-pulling, cutting, sawing of vines, climbers and small trees.

**When: Sat 16 October – Weed control/plant releasing  
work day**

**Meet: Corner Summit and Loop Roads (lake end) @ 8:45 am**  
**Grade: medium-hard – activities suitable for all ages  
and abilities will be provided**

**Please contact the organiser Paul Cashmore  
027 650 7264 (mob) or 07 349 7432 (work) to RSVP.**  
**Equipment to bring will be advised.**