

MIZORAM RUL CHANCHIN



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and
members of the*

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MESSAGE

Biodiversity And Nature Conservation Network (**BIOCONE**) leh Mizoram Science, Technology and Innovation Council (**MISTIC**) te'n lekhhabu tha tak '**Mizoram Rul Chanchin**' an buatsaih hi a lawmawm tak zet a. He lekhhabu atanga Mizorama rul hmuhchhuah tawhte chanchin kan hre thei tur hi a hlu ngawt mai.

Siamtuin he leilung luah tura duh taka a siam rulte hian, nungcha dang ang thovin, chanvo an nei a. Anmahni enkawla humhalhtu tur ber kan ni tih hi kan hriat chian a, a taka ke kan pen chhuah a hun viau a ni.

Mizote hian rul hi kan hmelma emaw kan ti fo thin a, rannung hlauhawm leh anchhe dawng, a hmu tawh phawt chuan ral ena en, a ngamte pheichuan a rang thei ang bera thah kan tum hun kha a liam mek a, a lawmawm hle.

He lekhhabu a lo puitlin theihna tura tha tawhtu zawng zawngte an fakawm tak zet a, an hma lam hun kal zel turah duhsakna ka hlan a. He lekhhabu chhiartute pawhin Mizorama rul dinhmun Chiang zawka an hriat theih mai piah lamah a humhalh lama tan an lak theih nan duhsakna ka hlan e.



(LALRINMAWIA RALTE)



THUCHAH

Mizo te hian RUL kan ngaihndan hi a thalo lam zawngin a ni tlangpui a, agriculture atana an tangkai dante hi kan hre pha lo hle niin a lang. Rul kan hmuh tawh phawt chuan tihlum ngei ngei duhna rilru kan la nei hi a pawh hle a; hei hi kan hriatna a la zauh tawh loh vang ni berin a lang. Rul hi sazu suattu pawimawh tak a ni a, hei hi loneitute tan a tangkaina pakhat a ni. A thuhriamah Rul zawng zawng hian TUR an nei lo tih pawh kan hriat a pawimawh khawp mai. TUR nei chi te hi tlem te chauh an ni a, chu pawh chu kan khawih buai loh phawt chuan mihringte tana hnawksak lo em em vek an ni.

Tawhsual palh hrim hrim vanga RUL chuk an awm laiin, a tam zawk te hi chu kan tihlum tumna lama chetsual avanga vanduai ta kan ni tlangpui.

BIOCONE in MIZORAM RUL CHANCHIN kum engnge maw zat chung an lo zirchianna atanga an tawn hriat lehkhabu tha tak mai, Mizo tawng ngeia ziak an rawn chhawp chhuak thei hi a lawmawm takzet a ni. Hei hi Mizo mipuiin a kan mamawh em em RUL chungchang min zirtirtu tha tak anih ngei ka beisei a ni.

Hriatlohna hian hlauhna te min neih tir a, kan khawsak pui ve tura Khuanu siam nungcha hrim hrim chungka kan rilru put dan te pawh hi kan thlak danglam a hun ta hle a ni.

BIOCONE ah hian member mithiam rual an tam em em mai a, an ni hian hetiang RUL zirchianna mai bakah nungcha leh ramsa dang chanchin te hi Mizo mipui tan rawn phochhuak zel se, chu chuan nasa takin zirtirna min pe thei ngeiin a rinawm.

Kan ram hausakna kan rohlu te chu khawmual leh luia kan nungcha hrang hrang te hi an la ni reng dawn a ni. Chhuan lo la awm zel tur te hmakhaw thlir chungka kan dimdawi a kan enkawl hi kan bat a ni.

BIOCONE an kal zelna ah duhsakna ka hlan e.

Ka lawm e.

Lalram Thanga



MIZORAM SCIENCE, TECHNOLOGY & INNOVATION COUNCIL
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GOVERNMENT OF MIZORAM

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THUCHAH

Hmanlai Mizote khan ziaka thil vawn that inrochun tur nei kan nei tha lo hle a. Savuna zia kan neih chhun pawh uin a pu bo daih, tih a ni. Kan thawnthu leh hmanlai chanchinte chu a thuin kan inhrilhchhawng ber a. Kan lo neih dante, sapela ramchhuah dante, khawchin kan chhinchhiah dante leh thil dang tam takte pawh engemawchen vawiin thlenga hriat zui tur a awm a, Mizo Historian hmasate hmalakna rah tha tak a ni. Amaherawhchu a tir ata ziaka lo awm thalo ta na na na chu thil tam tak chiang zawka hriat zui tur an awm ta lo a ni. Ziakin lo awm tha leh zual ngat se chuan tun ai hian a hnam ang pawhin hma kan sawn leh zual sawt phahna le!

Mizoramah hian rul chi hrang hrang kan ngah hle a. Kan thawnthuah te pawh an chanchin kan hmu fo thin. Amaherawhchu kan ram chhungah rau rau pawh rul chi hrang hrang kan hriat dante a lo inanglo thin hle a. A sawi uar deuhin an sawi dante chu a dik emaw dik loh dan emaw thlu lovin kan pawm deuh ringawt mai thin a, chiang lo ruaiin thawnthu (myth) ang deuh te'n kan hre thin.

Tun hnaiah Mizo thalai lekhathiam leh vengva tak takte an lo chhuak chho ta zel a. Kan rama kan neih rohlute pawh chiang leh zuala zirna (Research) an rawn bei chho ta a, a lawmawm tak zet a ni. Chumi kal zelah chuan ziaka vawn that turin kan mamawh em em mai 'Mizoram Rul Chanchin' chu chhuah theihin a lo awm ta a, science zirna huangchhungah chuan Mizote tan mellung pawimawh tak a ni. Rul chanchin bakah hian nungcha dangte chanchin ziahna pawh hmachhawpah la awm zel thei se a duhawm hle mai.

Dr. R.K. LALLIANTHANGA

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CHHUAHTUTE THUHMA

Mizote hi nungcha chungah zahngaihna lantir nachang hre lo thin hnam kan ni a, kan hmuh apiang bitum a, sava no chawm leh sakhi railai pawh zuah lo, a sa kan ei theih loh tur leh ei duh loh tur leh ei tlak loh te, ei tham loh thleng pawha hmatiam mai thin kan ni. Rul leh bawkvaka kal ho ngat phei chu mawi tihna leh hmangaihna thinlungin kan en thei lova, an chanchin zirchian a, mihringte leh thilsiam dangte tana an tangkaina leh an inkungkaihna lam lah chhut kan tum hek lo. Mihringte hian thilsiam dangte tel lovin, keimahni chauhin leilungah hian kan dam khawchhuak thei emaw inti ang maiin kan khawsa thin.

Hetiang dinhmuna ding kan nih lai hian thilsiam tinreng leh an chenna khawvel ngaihtuahtu- Biodiversity and Nature Conservation Network (BIOCONE) chuan nungcha leh ramngaw humhalhah te, leilung, lui tui leh boruak bawhlhlawh tawhzia chungchang te, sik leh sa danglam chakzia te ngaihtuahin a theih ang anga hnathawkin mipuite pawh a zirtir reng thin a ni. Hemi kawnga hmalakna chikhat atan tiin tun tumah hian Mizoram a rul chi hrang hrang 52 chanchin bakah, rul chuk leh rul kaihnawih thildang an thlalak nen kan han buatsaih ta a. He lehkhabu hi India leh ram pawn thleng pawha zahpuiawm lo tura buatsaih ani. Hetiang ang lehkhabu rotling, Mizoten kan la neih ngailoh kan han nei thei ta hi a ropuiin a lawmawm hle. He lehkhabu a lo puitlin theihna tura tha leh sum sengtu BIOCONE member te, Zoram Rul Chanchin group member te leh Directorate of Science and Technology te chungah lawmthu ka sawi a ni.

He lehkhabu hi mitinin chhiar thei sela, chhiartute hriatna a tihpun bakah rul chungchanga an ngaihndan pawh a danglam ve ngei ka beisei. Tunah hian Mizo tawnga tihchhuah hmasak phawt ani a, English edition kan tihchhuah theih hunah phei chuan tun ai hian a changtlun zawk a rinawm.


Dr. VANLALHRUAIA PACHUAU
President

ZIAKTUTE THUHMA

Lehkhabu ziah hi a lo namai lo hle mai a, a bikin he lama hnuhma la nei tam lo tan pheih chuan a harsa khawp mai, hlawhchham dawn emaw intih ram ram chang pawh kan ngah hle.

He lehkhabu 'Mizoram Rûl Chanchin' pheih hi chu chhiar nuam leh rin tlak, nakin zela rul chanchin la zir turte tan pawha tangkai thei tur zawnga ngaihtuahna sen tel a ngai baw si nen, thaw han sat phat phat chang leh han inhnial bap bap chang lah a tam, mahse tum ve ngar ngar na na na chuan kan lo puitlin ve ta hram a ni.

Kum 2012 kum tawp lam atanga buaipui tan kan niin veng hrang hrang leh khaw hrang hrang inhlak tak takte kan ni hlawm nen, hun leh hmun remchang apiangah kal khawma han ziah tak tak chuan tlaivar dawn thuk thuaka men chang pawh kan ngah hle.

Thlalakte hi Mizoram chhung ami, Mizote lak ngei hman kan duh kher baw nen, ramhnuai han vah chhuaha rul han zawn chuk chuk te khan inkawmngaihna leh inpawh tlanna tha tak min pe a, chu chuan nasa takin thawhona lamah min pui ve thung a ni.

Mizoram hi nungcha-ah hian kan lo hausa em em mai a, rul pawh hi family hrang hrang chi kua (9) lai awmin chumi chhungah chuan rul chi hran hi tun thleng hian chi sawmnga pahnih (52) chuang hmuh chhuah a ni tawh a, a bak hmuh chhuah belh zel tur a la awm ngeiin a rinawm baw. Tin, rul chi hrang sawmnga pahnih (52) chuang kan neih atang hian mihring tana hlauhawm, tûr (venomous) pai chu chi sawm leh pakhat (11) vel chauh hmuh chhuah a la ni a, hei vang hian rul zawng zawng kan hlauva thah zel mai kan tum thin pawh hi kan hriat chian tawh loh vang a ni tih a lang chiang hle.

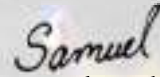
He lehkhabu ziaktute hi inhre sa lem lo, social network facebook-a 'Zoram Rul Chanchin' group atanga inchhar kan tam ber awm e. chutiang kan nih avang chuan lehkhabu kan buaipui lai pawhin duh dan leh ngaihdan thuhmun lem loh chang te pawh a tam thei thin hle. Mahse le, a tawp a tawpah chuan kan thawhrim tlanna leh Pathian zarah tak meuh meuh lehkhabu kan han soal chhuak thei ta hi kan lawmin kan kutchhuak hi kan chhuang ve tak zet a ni.

- ZIAKTUTE

ZIAKTUTE



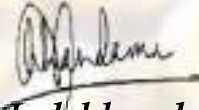
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(Dr. Samuel Lalronunga)



(C. Lalremtluanga)



(Dr. C. Lalchhandama,)



(Dr. C. Lalrinchhana)



(Dr. Jeremy V. Pachuau)



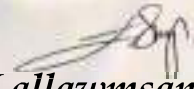
(Dr. Lallianpuii Kawlni)



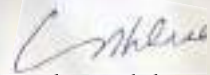
(H. Lalremruata)



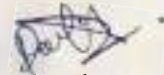
(K. Lalmangaiha)



(Lallawmsanga)



(Lalnunhlua)



(Lalpantluanga)



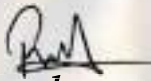
(Linda F. Zohmingthangi)



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(R. Zoramchhuana)



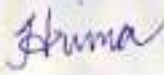
(Romalsawma)



(Sangzuala Pachuau)



(Vanlalhriatzuala Sailo)



(Vanlalhrima)



(Zodinliana Fanai)

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Rulngan note (Vanlalhrima)

RÛL

“Rûl” kan tihte hi nungcha hnungzangruh nei zinga “Reptiles” kan tih zing ami a ni. *Reptiles* tih chu Latin ðawng- ‘*reperere*’ tih aţanga lak a ni a, ‘*bawkwaka kal chi*’ tihna a ni. Reptiles chuan satel lam chi te, laiking/laitel lam chi te, leh rûl lam chi ho hi a huam vek a, *Reptiles* leh *amphibians* (uchang lam chi) zir bingna chu *Herpetology* tiin an sawi mai ðhin. Reptiles zingah rûl chuan kut leh ke emaw nei lo in a tlengin a tleng ðhin a, hei hi reptiles dang nena a danglamna langsar ber a tih theih awm e. Tin, rûl chuan mit vun hranpa a neih loh avangin a mit a khap ngai lo a, beng kua a nei lo bawk a, hei hi laiking ke nei lo ho te nena hriat hranna awlsam tak a ni bawk. Rûl taksa pum pui chu phuhlipin a tuam chhuak vek ðhin a, hei hi ngharûl ðhenkhat leh uchang ke nei lo ðhenkhat nena ðhen hran awlsamna a ni. Khawvelah hian rûl chi hrang hrang 3,400 vel zet a awm tih hriat a ni tawh a, khawmualpui zawng zawng, Antarctica tih loh chu an dâp chhuak vek. Thliarkar ðhenkhat- Ireland, New Zealand, etc. Atlantic leh Pacific tuifinriatah te pawh hian hmuh tur a awm ve lo a ni. India ramah hian rûl chi hrang hrang species 272 vel awm anga ngaih a ni. Heng zinga species 102 te hi India Hmarchhakah awmin Mizoram bikah chuan species 60 vel chhinchhiah a ni tawh bawk.

Khawvel pum huapa rûl te hi a pianhmang leh sei zawng a inang lo ve hle mai a, rûl tawi te ‘Thread Snake’, 10 cm aţanga ‘Reticulated Python’ (Rûlpui), 6.95 m (22.8 ft) thlenga sei a ni thei. Rûl kan tihte hi mithiamte chhut dan chuan kum maktaduai 112 vel liam ta, ‘mid-Cretaceous period’ hun laia lei hnuai leh tuia khawsa chi laiking chi khat aţanga zawi muanga rawn insiam chho anga ngaih a ni. Hemi tichiangtua ngaih chu rûl ðhenkhatah chuan khêl ruh leh serh kaw lehlam lehlamah tin (claw) ang deuh, ke ni ve awm tak a awm ðhin vang a ni. Entir nan- saphai ‘siak’ kan tih ang chi te hi. Rûl zawng zawng hi sa hel ei chi

niin a chaw pai ṭawihna pawh a ṭha hle. Chaw pai ṭawih tur hian khaw lum lam deuh, 30°C vel hi a mamawh tlangpui. Rûl hian a mit khaw hmuh ai mahin a leî leh rim hriatna bawm (*Jacobson's organ*) hmangin chaw a zawng ber ṭhin. Lei hrûla a vun hian hriatna chak tak mai neiin, lei leh boruak nghawr (vibration) a hre rang hle. Rûl tam zawk hi tûr (venom) neilo chi niin, tûr nei chi erawh chuan a tûr hi inven nan ai mah chuan a chaw tur nungcha dangte nikhaw hre lova siam nan emaw tihhlum nan emaw a hmang ṭhin a ni. Tûr nei lo chi erawh chuan a chaw tur hi a nung chungin a dawlh emaw, a zial hlum emaw ṭhin. Kum khat chhungin rûl upa lamah vawi hnih leh rûl la naupang lamah vawi li lai te a inlip tlangpui ṭhin. Rûl tam zawk hi tui nei a note keu chi (*oviparous*) a nih laiin, a ṭhen chu a pui taksa chhunga tûi keu phawta notehring chhuak leh chi (*ovoviviparous*) a ni. Rûl hi thisen vawt nei chi (*poikilotherms*) a nih avangin hmun lum leh ruam lamah a khawsa duh chawk. Thlasik khaw vawh tak tak lai chuan lei kua, lung hnuai, thing leh hnahtel hnuaiiah te a tawm bo (*brumate*) ve ṭhin. Puk ṭhenkhatah phei chuan rûl tam tak a huhoin an tawm khawm ve ṭhin bawk.

Rûl hian chhah kawlh emaw, hliam emaw a tawk a nih loh chuan mihring min bei hmasa zen zen lo a. Mihringte hi min pumpelh hram hram a tum zawk ṭhin. Khawvela rûl tûr nei species, 725 zinga species 250 chauh hian a vawi khat chukah mihring nunna a la thei nia hriat a ni. He lehkhabu-ah hian Mizorama rûl awm chhinchhiah tawh te, tûr nei (venomous snakes) leh nei lo (non-venomous snakes) te, awlsam taka hriat hran theih tura tar lan a ni bawk. Tin, Mizoram chhunga rûl ṭhenkhat hi Mizo hming nei lo a nih avangin he lehkhabuah hian a pianzia, rawng leh mize mil deuhva an hming phuah a ni a, chhiartute zingah an hming dik awm sa lo hria kan awm a nih chuan an thurawn kan ngaichang reng e.

RÛL TÛR (SNAKE VENOM)

Rûl tûr (*venom*) kan tih hi damdawi (*chemical*) chi hrang hrang inpawlh, tum bik (*target*) neia taksaa thawk tiin kan sawi thei awm e. Rûl zinga tûr neiho hi 'Venomous snake' tih a ni a, a chhan chu an tûr siam chhuah hi mumal taka taksaa thun dan an neih vang a ni. Rûl hian a tûr hi a chaw zawn nan leh a hmelma laka inven nan a hmang deuh ber. A tûr hian a chaw rannungte chu che thei lo a siamin, awlsam takin a dawlh thei ðhin a ni.

Mizorama kan hmuhah chuan rûl tûr neiho hi family pathum a awm a, Elapidae, Viperidae leh Colubridae te a ni. Elapid leh Viper family ho hi rûl tûr hlauhawm nia kan hriat tlanglawn a ni a, Colubrid ho zinga tûr neiho pawh hi tun hnaia zir chiannaah family dang ang tho hian an tûr hi a hlauhawm ve tih hriat chhuah a ni. Amaherawhchu, Elapid leh Viper ho hi chuan tûr thunna tur ngho mumal tak an ka hma lamah an nei a, hei vang hian an chuk hun chung rei lo pawh ni se mumal takin tûr an thun thei ðhin.

Rûl tûra thil awmte:

Rûl tûr hi species inang khat leh hmun khata awmhovah pawh an tûr a thil awmte hi a inang vek kher lo ðhin. Thil chi hrang hrang inpawlh a ni a, a pawimawh zualte lo tar lang ila:

Enzymes (PhospholipaseA₂, metalloproteinases, serine proteases, acetylcholinesterases, L-amino acid oxidases, hyaluronidases, etc.). Phospholipase A₂ hian tisa, tihrawl leh thisen a tichhia a, metalloproteinase ho hian thi pût, thisen hniam (hypotension), vung, etc. a thlen thei.

Non-enzymatic Protein (3FTXs, Kunitz-type serine protease inhibitors, sarafotoxins, cysteine-rich secretory protein (CRISP), disintegrins, C-type lectins, etc.). 3-Finger toxins (3FTX) te hi α -neurotoxins, κ -bungarotoxins,

muscarinic toxins, etc. te a ni a, neurotoxic effect a thlen ðhin a ni.

Tin, *carbohydrates, nucleosides, lipids, metal ions, etc.* te a la awm bawk.

Rûl tûr chi hrang hrangte:

Rûl tûr hi taksa-a a thawh dan a inang lo viau hlawm a, a lan chhuah dan azirin hlawm lian chi hnihah ðhen a ni.

1. Neurotoxic venom :

Tûr hian tha zam (nerve) leh tihrawl (muscle) inzawmna (Neuromuscular junction)-ah taksa hna thawh tibuaiin, thawkna lamah te harsatna a thlen ðhin. Rûl hrang hranga neurotoxic tûr awmte hi a inang vek lovin a thawh dan pawh a dang ðhin hlawm. A tlangpuiin Elapidae family ami te hian hetiang tûr hi an pai.

2. Haemotoxic venom :

Tisa leh thisen (RBC) a tichhia a, tûr ðhenkhat chuan thisen khal thei lovin a siam a, a ðhen erawh chuan thisen a tikhhal thung avangin taksa hnathawh a tibuai ðhin. Rûl chukna hmuamhma aþanga thi put, thisen hniam, lung hnathawh buai, etc. a awm thei. Viperidae family kan tih ami te hian he tûr hi an pai tlangpui thung. Rûl ðhenkhatah chuan tûr chi 2 anga thawk te pawh a awm ðhin bawk.

Mizoram chungka kan hmuh theih zinga tûr neiho te

Neurotoxic tûr neiho: King Cobra (Rûlngân), Monocled Cobra (Chawngkawr), Black Krait (Khuavangrûl), Banded Krait (Chawngleî), McClelland's Coral Snake (Rûl-Þhi-hna).

Haemotoxic tûr neiho: Green Pit Viper (Rûltuha chi hrang hrangte), Mountain pit viper (Rûlmuk / Zorûl), Brown-spotted Pitviper (Rûlthinghar), Red-necked Keelback (Rûlnghawngsen)

RÛL NGHO LEH A TÛR BAWM

Ka hma lama ngho neiho (front fanged)

Viper: A mit hnung leh hnuai lamah hian tûr bawm (*venom gland*) a awm a. Hei hi dâwt (*primary duct*) in bawm dang (*accessory gland*) a zawm a.

. Tichuan, dâwt dang (*secondary duct*) awm lehin, hei hian ngho-a kaw awmah a zuk zawm a ni. A ngho hi a sei bikin a langsar viau, a ka a chîp lai chuan a inthlep mai a, a ka a an rual hian tûr thun thei turin a rawn pir chhuak nghal thin.

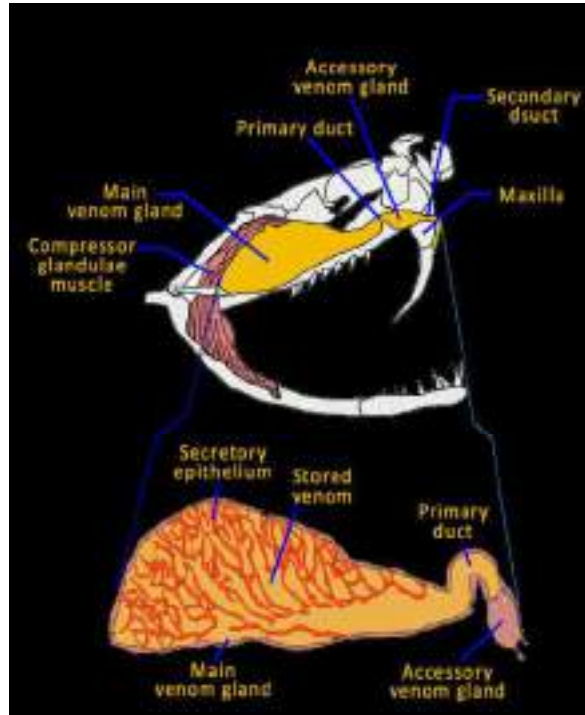


Fig. 1: Viper venom gland

Elapid (Coral, Cobra leh Krait): Tûr bawm (*main venom gland*) hi a mit hnung leh hnuai lamah a awm a, bawm dang (*accessory gland*) nen a inzawm.

Accessory gland hian dawt (*primary venom duct*) a awm hual a, tichuan ngho-ah a zuk zawm thla leh a ni. A ngho hi a inthlep ve lo va, tin viper ai chuan a tawi zawk bawk.

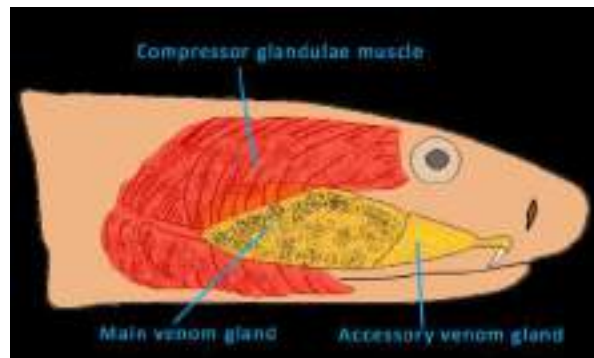


Fig. 2: Elapid venom gland

Ka hnung lama ngho neiho (rear fanged):

Colubrid: Tûr bawm (*Duvernoy's gland*) hi a mit hnung leh hnuai deuh hretah a awm a, tûr a inkhawl tam thei lo. Tûr inkhawl sa hi dawt (duct) tawi tein an ka hnung lama ngho (fangs) ah a va zawm. A ngho hi Elapid leh Viper ho angin a sei lo va, a tûr pek chhuah a tam lo bawk. A ngho hi a ka hnung lama a awm a nih vang te, a tawi vang te leh tûr a khawl tlem avang te hi a ni maithei a thil chuk hi a hmuam a, tûr thun tura a thial deuh a ngai thin.



Fig. 3: Colubrid venom gland

RÛL LU PAHNIH NEI (Dicephalic Snake)

Polycephaly tih chu "lu pakhat aia tam" tihna a ni. Polycephaly hi Greek thumal pahnih lak kawp a ni a, *poly-* (Greek: "πολύ") tih chu "pakhat aia tam" tihna a ni a, *kephalē-* (Greek: "κεφάλη") tih chu "lu" tihna a ni.

Polycephaly hi piansualna chi khat niin nungcha hrang hrangah a thleng thei. Rûl bikah chuan lu pahnih (*dicephaly*)

aia tam nei hmuh a la ni lo. Hetiang dicephalic rûl hi ramhnuaiiah chuan a puitlin thlenga dam harsat hle tura ngaih an nih laiin, mihring enkawlina hnuaiiah chuan a puitlin thlenga dam sawi tur a awm bawk.



Photo: Lallawmsanga

RÛL HUMHALH LEH AN PAWIMAWHNA

He khawvela Pathian thilsiam zawng zawngte hian inkungkaihna thuk tak kan nei vek a. Khawvel leh a chhunga awmte hi hriat chian loh chuan hla tak aţanga ena maimawm ril ang maia inzam buai chuk te pawh a ang awm e. Amaherawhchu, maimawm ril hi chik zawka kan en chuan, thil namai lo leh mawi tak, engkim fel thlapa awm a, kil tina inzawmna nei tlat, a ril zai khat pawh a pum pui tana ţangkai leh pawimawh tak a ni. Chutiang bawkin ramngaw leh nungcha hrang hrangte hi an inringtawn vek a, pakhat nuai bova a awmin ecology-ah nghawng nasa tak a nei ţhin. Maimawm ril zai khat a chahin a dangin a chat ai kha a support ţhin. A chah belh zel chuan a la chat ve lo te phur a rit ting a, a tawp a tawpah maimawm tan chenna tlak a ni lo ţhin. Ramngaw leh nungchate hi kan tihchereu zel chuan zawimuangin khawvel hi kan tan chenna tlak lovah kan siam zel a ni.

Rûl (snake) te hian hmasang aţang tawhin mihringte khawsak phungah leh sakhaw puithuna thilah hmun an luah hnem em em a. Hnam ţhenkhat pathian anga biate an awm lain, a ţhen chuan ei atan leh damdawi atana hmang an awm. Kan khawvel nihphungah hian awmze nei leh ţangkai tura Pathianin a siam an ni a, an pawimawhnate pawh kan hre chho zel bawk.

He khawvela thilnung awm zawng zawngte hi Pathianin cheng za tur leh inmamawh tawn turin min siam a, rannung mawlmang leh te ber aţanga ramsa lian ber thleng hian kan inmamawh tawn vek a ni. Heng nungchate zinga kan ngainat loh ber leh tihlum zel kan duh rûlte pawh hian khawvel inrelbawl danah leh mihringte khawsaknaah pawimawhna an lo nei ve reng si a ni. Khawvel inrelbawl dan leh mihringte tana rûl pawimawhna ţhenkhat lo tarlang ila:

1. Lo neitute (farmers) tana thian tha an ni:

Rûl hian chaw atan sazu, uchang, uṭawk, rannung tenau (insects), sava leh a tûi leh ramsa tenau deuhthe an ei ṭhin a. Heng an chaw zingah hian sazu hian buh leh thlai an ei chhe ṭhin tih kan hria ang. Sazu an pun vak chuan kan buh leh thlai chinte, kan thar chhuah leh dahṭhat thlengin an ei ral a, kan hlawkna tur tam tak chu zan khat thil thua a riral thei mai a ni. Rûl hian heng sazu pung chak lutuk tur hi an lo veng (control) reng mai a, mihringte tana pawî nasa zawk a thlen loh nan hna pawimawh tak ngawi rengin an lo thawk reng zawk a ni. Kum tinin Asia ram hrang hrangah hian sazu vangin buh (rice) thar tur hi 5-10% in a tlem phah a, 5% ringawt kan chan hian kum khat chhunga mihring maktaduai 180 chawm thei tur buh 30 million tonnes kan chan tihna a ni. Heng buh chauh ni lovin thlai leh chaw atana kan rin tam tak leh kan thar chhuah sa pawh an lo eiral ṭhin a ni. Vietnam ramah chuan sazu laka an buh leh thlai chin te veng turin rûl an chhuah ṭhin. Heng sazu pung chak tur lo vengtu rûlte hi an pawimawhna lo hre lovin, that mang vek tawh ila chuan kan ṭam fo vang a, ni tin ei tur man a to bawk ang a, ram rethei zualte pheî chuan kan tuar nasa zual dawn a ni.

2. Anti-venom (Rûl tûr thahna) siam nan:

Rûl ṭhenkhat chuan mihring thihna thlen thei khawpin tûr (venom) hlauhawm an nei. Amaherawhchu rûl tûr vek aṭang hian heng rûl tûr hlauhawm neiho chuk laka inchhanhim nan anti-venom (rûl tûr thahna) a siam ve leh theih a. Anti-venom a awm aṭang hian rûl chuk vang nunna chan pawh nasa takin an tlem phah a ni.

3. Damdawi siam nan:

Rûl tûr hi thil chi hrang hrang (chemicals) inpawlh awm khawm a ni a, hna thawh dan hrang hrang a nei thliah thliah a ni. Thisen sang damdawi (Captopril) leh thi put tih rehna (Botropase) te hi rûl tûr aṭanga siam a ni a.

Tin, rûl tûr aţanga damdawi thar hmuh chhuah tur hi tam tak a la awm a, khawvel ram dangah chuan nasa takin he lamah hian research an ti nghe nghe a ni. Kan rama awm ve Rûngân (King cobra) tûr (venom) pawh hi ram danga zir mite chuan nachhawkna damdawi atana thatna nei niin an hria a, an zir Chiang Mek a ni. Keini pawh hian kan rama rûl tûr nei chi kan neihte hi zir Chiang leh zel turin hmabak kan la ngah em em a ni. A tângkaina hai chhuah hun kan la nei ve ngei ang, chung hun a lo thlen theih nan chuan tun aţanga kan humhalh that hi a pawimawh em em a ni.

4. Nungcha dangte chaw atan:

Rûl hi nungcha dangten chaw atan an hmang ve a. Sava lam chi zingah chuan Muvanlai (Black-crested snake eagle) leh mu chi thenkhat, Sarivaithun leh Saphairuang (Mongoose) te hian chaw atan an ring ve a ni.

5. Natna hri darh tur vengtu an ni:

Sazu hian natna hri tam tak an pu darh thin tih kan hre awm e. Rûl hian sazu an ei avangin natna hri tam tak darh tur lakah kan lo him phah a ni ti ila kan sawi sual awm lo ve.

Rûl hi insawithaih nan leh hlauhawm thei ang bera kan sawi fo hi bansan a, kan tana an hlutna leh an pawimawhna te inhrilh zawk hi a hun tawh hle a ni. Kan hmuh apiang thah zel kan tum reng a, rûl huat kan inzirtir chung chuan kan rama rûlte hi an tlem tawlh tawlh ang. An dinhmun dik tak kan hriat vek hma leh kan zir chian vek hma hian kan that rem mai ang tih a hlauhawm hle a ni. Kan rûlte hi kan tihchimih hnuah chuan a pawizia sawi ngai lovin kan hria ang, chumi hunah erawh chuan kan tih theih a vang tawh viau ang. Chutiang hun kan thlen loh nan chuan tun aţang hian kan tan leh he khawvela rûl an lo awm ve pawimawhzia te hi kan sawi uar a, a humhalhna kawnga tan lak sauh sauh a tul hle a ni.

VANTLANG TANA RÛL CHUK ENKAWL DAN (Snake Bite Management for Common Man)

Rûlin mihring a chuk chhan chu thawn thut (startled) vangte, hual chep (cornered / threatened) vangte, chhaih kawlh (enraged) vangte a ni,' an ti.

TIH LOH TUR:

Hmanlaia rûl chuk an enkawl dan, tuna a tha lo tih an hmuh chhuah tak thenkhatte chu:

1) Tawn/hren khalh (Tourniquets):

Rûl chukna hmuamhma chu hruiin emaw, puanin emaw, tawt taka tawn khalh tur.

Rûl tûr dang tur khawp chuan thisen kal thei lo khawpa tawn/hren tawt a ngai a, chutianga hren chuan kan hren khalhna taksa peng lehlamah thisen a lutin a chhuah theih loh avangin a thi mai thin a, tan a ngaih phah thin. Mi dangin an lo hreng tawh a nih erawh chuan damdawi in thlen hma chuan phelh tawh hauh loh tur a ni. Mi thiam bik (medically qualified personel) i nih loh chuan ti ve ngawt suh.

2) Zai hawn:

A chukna hmuamhma chu zai kak tur (a tûr fawh/hip chhuah nan).

Rûl kaah hian a tur mai bakah natna hrik tamtak a awm a, a hmuamhma zai hawn belh hian natna hrik luhna chance a tih san mai bakah a tuartu tan a na thlawn mai a ni.

3) Fawh / hip chhuah:

A chukna hmuamhma zai hawn hnu chuan rûl tûr chu fawh/hip chhuah tur.

Rûl tûrah hian chemical chi khat 'Hyalurondase' a awm a, chu chemical chuan rûl tûrin taksa a luh rualin rang takin a sem darh nghal thin. Minute 3 ral hnuah pheh chuan a tûr lut zawng zawng aţanga 0.1% pawh a hip chhuah theih tawh loh. A fawptu kha a ka a pilh emaw a

ka chhungah hliam a neih emaw chuan rûl tûr kha a ka pilh/hliama a luh emaw chuan rûl chuk nen a inang reng.

4) Silfai:

A chukna hmuamhma leh a vel fai taka sil tur.

Rûl chukna hmuam hma bul velah hian rûl tûr leh rûl ka chhunga natna hrik a kai tel ðhin avangin sil loh a him ber. Sil zawngin heng rûl tûr leh natna hrik kai hi a pemah tihluh palh a awl hle.

TIH TUR:

Rûl chuk enkawl dan pawimawh hmasa ber (first-aid) leh vantlangin kan tih theih chu hetiang hian an tarlang:

1) Chuk nawntir suh:

A damlo (tuartu) leh a vela awmte a chuk leh loh nan fimkhur rawh. A tuartu emaw, a ðanpuitu emaw a chuk nawn leh ai chuan rûl chu thah/ man kher tum suh. Duhthusamah chuan a rûl chu thah a, damdawi ina ken tel theih a ðha, a nung chung chuan ken hauh loh tur.

2) Chiai suh:

Damlo chu a hahdam thei ang berin siam la, chiai suh. Manganna leh chaina hi inkai chhawn theih a ni a, damlo chu a chiai chuan a lungphu a rang a, rûl tûr hnathawh a tichak ðhin.

3) Phelh thawl rawh:

Rûl chukna hmuamhma leh a vel chu a vun nasat ðhin avangin phelh thawl rawh. A chukna hmun azirin a sana, ngun, zungbun, pheikhawk, etc. hlihsak rawh.

4) A taksa siam rem rawh:

A chukna hmuamhma chu a lung (heart) aia hniamah dah tir la, a hahdam leh che lo thei ang berin damlo taksa chu siam rem rawh.

5) Muang suh:

Second tin kha nunna leh damna hriltu a ni thei, phili lovin hmanhmawh rawh.

6) Puithuna atthlakah buai suh:

Rûlchuk damdawi leh enkawl dan finfiah loh (without scientific proof)-ah inhambuai suh. Entir nan heng Soda inchiu te, Khaini barh te, Ar mawng hip tir leh Tengtere mu hiptir te. Rûlin a chuk che chuan Second tin, Minute tin kha i nunna atan a pawimawh tawh tih hria la, heng a chung a entirna kan sawi loh pawh Mizopa damdawi hriat han hman chhin phawt a, dam phah leh si loh hnu a, Hospital pan leh hnuhnawh chu i tlai lutuk thei tih hria ang che.

7) Tanpuitu zawng rawh:

Damlo chu a theih hram chuan kea kal tir loh tur a ni. A theih phei chuan motor-a hlan nghal tur, a remchan loh chuan zawn a tha. Chutiang tur chuan tanpuitu zawng la, damdawi in hnai ber panpui nghal rawh. I hmu lo a nih pawn kaihkuah/tiang hawltir tur a ni a, a chukna bawr chu a che lo thei ang bera siam tur.

8) Ei tur leh in tur pe suh:

Damlo chu ei tur leh in tur pek loh a him. Zu lam chi phei chu pek hauh loh tur.

9) Symptomatic Treatment:

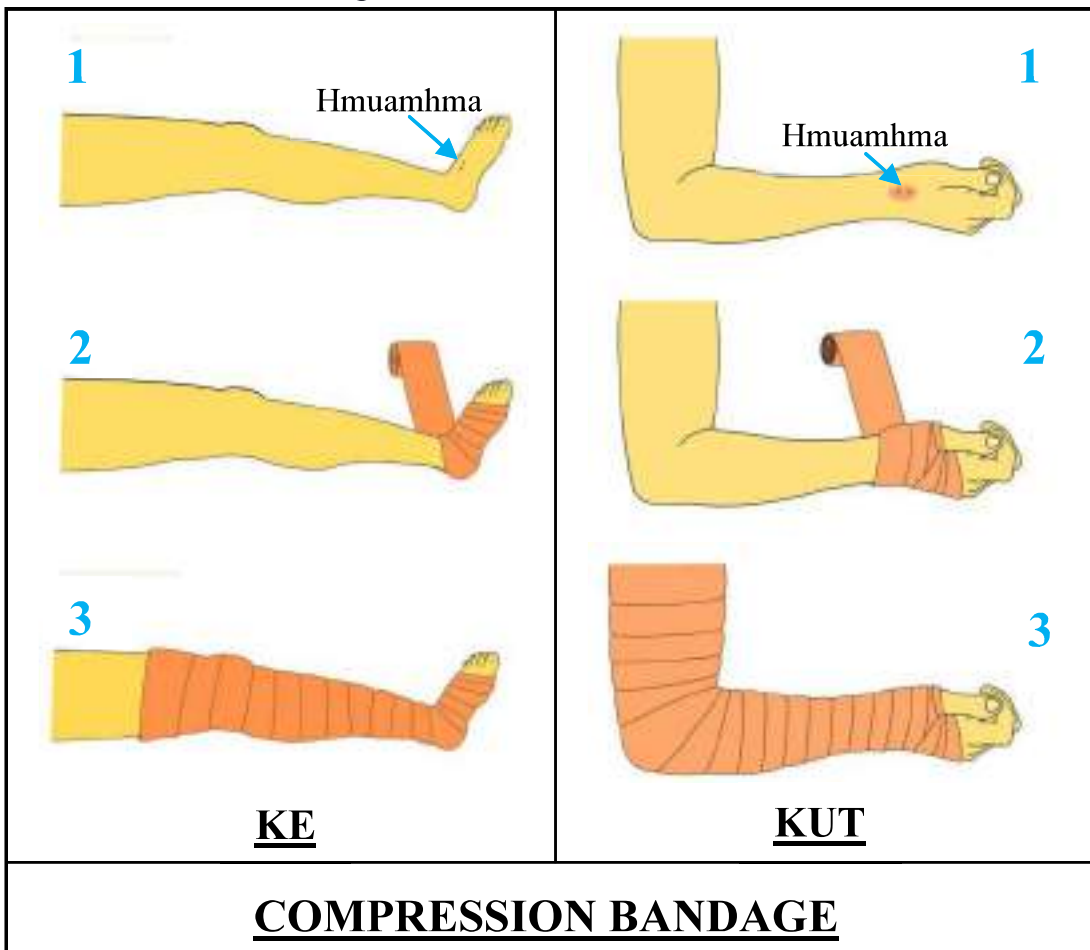
Damlo chu a thawk a hah viau chuan CPR pe rawh. Na a tih viau chuan paracetamol pe rawh, nachhawkna thenkhat hian lungphu a ti rangin, rûl tûr hnathawh a tichak thei tih hria ang che.

10) Thlamuan rawh:

Rûl chuk zawng zawng 70% hi rûl tûr hlauhawm lo chuk a ni. Rûl tûr neiin a chuk 50% hi dry bite a ni a, a bak aţanga 30% chauh hi thihpui khawp (lethal dose) a ni.

Chungho pawh chu damdawi nena enkawl dam awl tak a ni. Damlo chu thlamuan rawh.

Heng bakah hian neurotoxin/cardiotoxin tûr pai chi (Rûlngân, rûl-ṭhi-hna, chawngleî, khuavangrûl etc.) bikah chuan a chukna hmuamhma velah ṭhem dawh a, tawt lutuk lo (kut leh ke ulh tuam dan ang velin) va tuam a ṭha. Hei hian taksa-a rûl tûr insem darh tur chu a timuang thei a, taksa bung pawimawh (lung, chuap, etc.) lama hna a thawh tak tak hma a enkawlna ṭha zawk pek hman a nih theihna atan a ṭangkai hle.



Mahse, cytotoxin / haemotoxin tûr (tisa ei chhe thei) nei chi rûl (rûltuha, rûlmuk, etc) -ah chuan tuam loh a him. Tuam a nih chuan, a chukna hmuamhma leh a velah rûl tûr chuan hna a thawk nasa bik a, a chukna bul vela tisa leh thisen chu nasa takin a ei chhe ṭhin.

RÛL PHUHLIP LEH A INREM DAN (*Scalation of Snakes*)

Rûl hi ramsa dang ang lo takin a pianhmang leh a lan dan aţang ringawt chuan hriat hran a harsa hle. Rûl chi khat, inang reng pawh a awmna hmun azirin a rawng leh a taksa ran dan a danglam daih thei. Rûlngân (King Cobra) kan tih pawh hi  henkhat chu dum tle zak mai a nih laiin, a  then chu vutbuak rawng leh rang riai ruai a ni  thin. Chutih laiin, rûl chi dang daih ni si, entirnan r tuha lam chi, pianhmang leh rawng aţanga hriat hran hleihtheih loh khawpa inang a awm ve leh bawk a.

Hengte avang hian r l chi hrang thliar hranna atan chuan an rawng leh an  ial / ran dan chu innghahna tlak a ni lo va. Chuvangin, r l chi hrang thliar hranna atana an hman lar ber chu '*scalation*' (a puhlip pianhmang leh a inrem dan) an tih hi a ni. R l puhlip inrem dan leh a pianhmang chhinchhiah dan chu '*scale counting*' an ti. Scalation bakah hian r l thliar hranna atan chuan a pa serh (*hemi-penis*) pian hmang leh bar-coding (DNA sequencing) hmangin an thliar hrang  thin bawk. Amaherawhchu, he laiah chuan scale counting hmanga thliar dan chauh kan bih Chiang ang.

R l hi a taksa pum pui chu puhlipin a tuam chhuak vek a, chu r l puhlip chu *scales* emaw, *scutes* emaw tiin an sawi  thin. R l hi a puhlip tam lam leh inrem dan mumal tak nei si a piang / keu va, a puhlip inrem dan leh tam lam hi a puitlin thlengin a danglam ve ngai lo. A puhlip len zawng leh pianhmang erawh a inlih (inlip) apiangin a danglam hret hret thung  thin. R l puhlip hi mihring sam leh tin siamtu *keratins* an tih ang chi tho vin a siam a ni. Kuta khawih chuan r l puhlip hi a ro vawt thler  thin.

R l puhlip hian rawng hranpa a nei lo va, a fim  thin. R l rawng chi hrang siamtu ber chu a puhlipin a tuam

chhunga a vuna pigments vang a ni ber. Amaherawhchu, a phuhlip hian a taksa êng zungin a chhun kha lo tidanglam hretin rawng hring lam emaw rawng pawl lam emaw lek lekin a ti-tle thei. Rûl ðhenkhat chuan an vun rawng hi zawi zawiin an tidanglam ve thei a. Thlasik leh nipui lai te, chhun leh zanah te hian rûl pangngai reng pawh kha a rawng hi a danglam hret thei. Tin, rûl ðhenkhatah chuan a phuhlip inkara a vun chu rawng lar leh mit la tak a ni a, a awm phung pangngaiiah chuan heng rawngte hi a phuhlip inbawh thuahin a hliah tlat avangin a lang mai thei lo. Amaherawhchu, hual chep emaw, tih thinrim emaw chuan inham puarin, a phuhlip kara a vun rawng chu chiang takin a lang thei thung. Hei hi a invenna leh amah ei tumtute chhah buaina atana ðangkai tak niin ngaih a ni.

Rûl hian a khat tawkin a phuhlip chu a taksa aṅangin a khawk a, a inlip ðhin. Hetianga a phuhlip hlui a taksa aṅanga a tlak hran hi *moulting* emaw, *sloughing* emaw, *ecdysis* emaw tiin an sawi ðhin. Rûl hi a inlih/lip dawn chuan chaw a ei duh lo tlangpui a, hmun him bihrukna tur a zawng ðhin. A phuhlip hlui leh thar inkara a vun hlui lam chu a tui ral a, a phuhlip hlui leh thar chu a inṅhen hrang ðhin. A vun rawng pawh a thim hil deuh bul a, a mit pawh a paw deuh chuai ðhin. A lu leh taksa chu lung leh thing velah tatin, a ka reh kual lai aṅanga tat khawkin a vun hlui aṅanga chuan a tleng chhuak ðhin. A tlangpuiin a phuhlip hlui hi hlawm khatin a tla a, a darh nuaih hran lo. Rûl naupang deuh chu kum khatah vawi 4/5 lai a inlih laiin, a upa deuh chu vawi hnih khat bak a inlip ngai lo. A inliha vunah hian a phuhlip ziarang chiang takin a lang ðhin a, eng rûl inliha nge a nih tih hriat nan a ṅha hle.

Rûl taksa hi hmun thumah ðhen hran a ni tlangpui a, chungte chu- 1) Head (A lu) 2) Body (A taksa) leh 3) Tail (A mei) te a ni. Henga a phuhlip awm te leh a inrem dan hi chiang zawka enin, a chhinchhiah dan kan tar lang nghal bawk ang.

1. Head Scales:

Rostral : A kareh chung lam hmui hmawr lai takah hian phuhlip a awm a, chu phuhlip chu *rostral(R)* an ti. A tlangpuiin he phuhlip hi a lian bik a, rûl chi hrang hrangah a len zawng leh a pianhmang a danglam ðhin.

Nasorostral: Rûl ðhenkhatah chuan an rostral hnung chiah, nasal nena a inkarah phuhlip a awm ðhin a, chu phuhlip chu *nasorostral* an ti. Heng phuhlip hi a inkawpin a awm tlangpui.

Nasal (N): A hnarkaw awmna lai bawra a phuhlip chu *nasal* an ti. A hmui sir tawn tawnah a awm ðhin. A tlangpuiin a hnarkua hi phuhlip pahnih inkarah a awm tlangpui a, hma lam leh hnung lamah phuhlip pakhat ve vein a kar cheh ðhin a. An hnarkaw hma lama phuhlip chu *prenasal* an ti a, a hnung lam ami chu *postnasal* an ti thung.

Rûl ðhenkhatah chuan a phuhlip pakhat lai takah a hnarkua hi a awm ðhin. Nasal chung zawng chiah, internasal nena a inkara phuhlip a awm chuan chu phuhlip chu *supranasal* an ti. Rostral hnung, nasal chung a phuhlip a awm chuan *frontonasal* an ti.



Rostral Scale



Nasorostral



Nasal

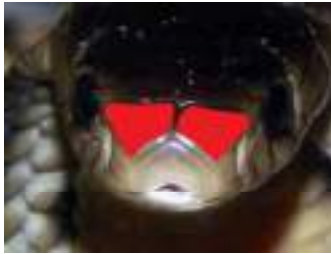


Prenasal



Postnasal

Internasal: A lu chhip lamah, a hnar hualtu puhlip inkara puhlip awm chu *internasal* an ti. Pahnih a inkawp tlangpui thin.



Internasal



Brille



Circumorbital Scales



Loreal



Frontal

Brille: Brille tih chu German țawnga tarmit tihna a ni. A mit tuamtu puhlip fim țha tak chu *brille* an ti. En mai chuan a mitmu angin a lang a, mahse, a inlip chuan he a mit tuamtu puhlip hi a tla tel thin.

Circumorbital: Oculus tih chu Latin țawnga mit tihna a ni. A mit hualtu, a mit nghenga puhlip awmte chu *circumorbital scales* an ti. A awmna hmun azirin a hming phhuah chhawn leh a ni.

Preocular (PRO) - A mit hma lama mit nghengtu puhlip a ni.

Postocular (PO) - A mit hnung lama mit nghengtu puhlip a ni.

Supraocular - A mit chung lama mit nghengtu puhlip a ni.

Subocular - A mit hnuai lama mit nghengtu, labials ni si lo a awm chuan subocular an ti.

Loreal (L) : Nasal leh preocular inkarah puhlip a awm chuan chu puhlip chu *loreal* an ti.

Frontal: Rûl chhip lai tak, supraocular inkara puhlip awm chu *frontal* an ti.

Prefrontal: Frontal hma chiah, internasal nena a inkara phuhlip awm chu *prefrontal* an ti. A inkawpin a awm tlangpui.



Prefrontal

Parietal: Frontal nghengt, frontal hnung lama phuhlip awm chu *parietal* an ti. A inkawpin an awm tlangpui.



Parietal

Occipital: Parietal nghengt, parietal hnung lamah phuhlip lian bik a awm chuan *occipital* an ti. Occipital hi a awm a nih chuan a inkawpin an awm tlangpui a, a inkarah phuhlip a awm chuan *interoccipital* an ti thung.



Occipital

Temporal: An bek sir, parietal leh supralabial inkar, postocular hnunga phuhlip awmte chu *temporal* an ti. Temporal hi tlar hnihin a awm tlangpui thin. A tlar hmasa zawk, postocular nghengtute chu *anterior temporals (AT)* an ti a, a tlar hnung zawk chu *posterior temporal (PT)* an ti thung.



Temporals

Labial: Labial tih chu Latin Tawng aṅanga lak a ni a, hmui tihna a ni. A hmui hualtu, a kareh nghenga phuhlip awmte chu *labial* an ti a.



Labials

Amaherawhchu, a hmui hmawr lai tak chung leh hnuai a phuhlipte chu a tel lo thung.

A hmui chung lama labial te chu *supralabial (SL)* an ti a, a hmui hnuai lama mi chu *infralabial (IL)* an ti. Amaherawhchu, rostral leh mental te chu labial hian a huam tel lo.

Mental: A khabe hnuai, a hmui hmawra phuhlip awm chu *mental* an ti. A hmui hmawr chung lam tawp a rostral nen a awmna hmun hi a inzawn thin.



Mental



Mental Groove

Mental groove: A mental hnunga a chinshield inkar, gular hma lam phuhlip inkar chu rin ngil anga a awm chuan *mental groove* an ti.



Chinshield

Chinshield: A khabe hnuai lama labial nghengt, mental hnung lam ami chu *chinshield* an ti a. Chinshield hi kawp hnihin a awm tlangpui thin. A hmui lam hnaihtu zawk kawp khat chu *anterior chinshield* an ti a, a mei lam hnaih zawka phuhlip kawp awmte chu *posterior chinshield* an ti thung.

2. Body Scales:

Dorsal:

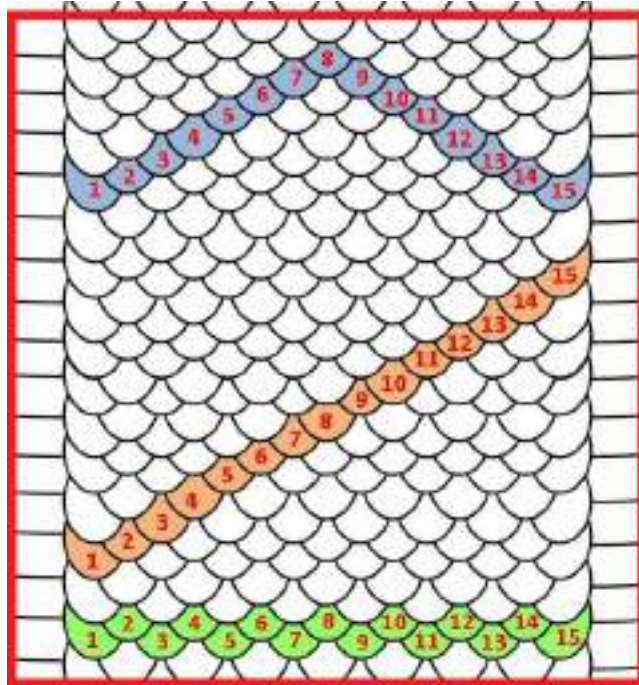
A taksa chung lam phuhlip chu a vang tan zawngin, a paivat deuhin a inrem thin. Chung an taksa chung lam, an tleng zawnga lei taw lo lama phuhlip awmte chu dorsal an ti.



Dorsals

Dorsal Scale (DSR)

chu hmun thumah chhiar *thin* a ni tlangpui. A lu tawpna zawng vel atanga a nghawng lamah, a lu sei zawng ang vel (one head length behind the head) atangin a hmasa ber chu chhiar *tan* tur a ni. A dawt chu a lu leh a mawng (anus) inkar lai tak, a taksa lian lai ber (mid-body) ah chhiar leh tur a ni. A



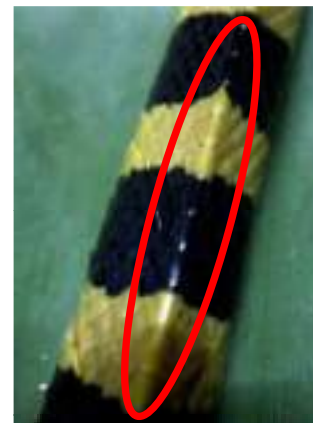
DORSAL COUNTING METHOD

hnuhnung ber chu a mawng (anus) zawnah chhiar tur a ni. A dorsal chhiar dan hi chi thum a awm a, a lem dah ang hian mahni duh angin, a taksa vang tan zawnga chhiar tur a ni.

Enti nan: A hmasa ber, a lu bula mi chu 15 lo ni ta se, a laia mi (mid-body) chu 19 lo ni ta se, a mawng (anus) zawng ami chu 17 lo ni ta se. A dorsal scale count (DSR) chu 15:19:17 tiin ziah tur a ni. A chang chuan hmun khatah, a taksa laiah (mid-body) chauh hian an chhiar ve *thin* bawk.

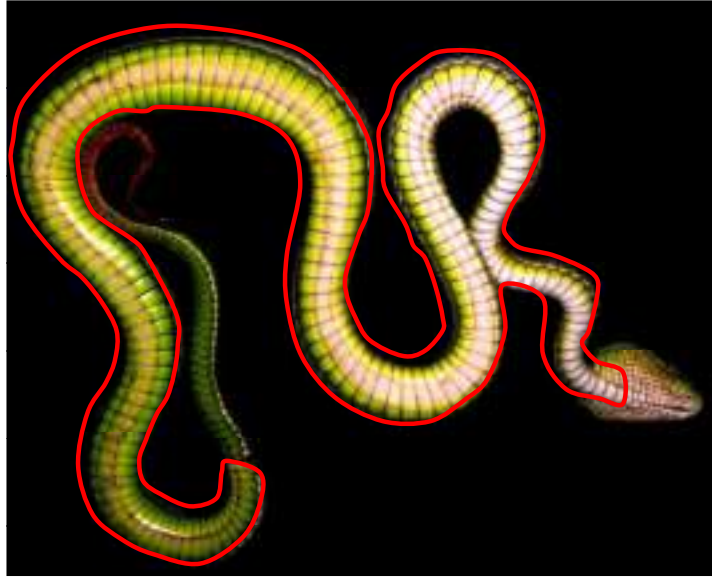
Vertebral:

Rul *thenkhatah* chuan a taksa chung lam, a hnungzang lai taka puhlipte chu adung zui zawngin a intlar *thin*. Chung puhlip, a hnungzang dung zuia tlarte chu *vertebral* an ti.



Vertebral

Ventral: A taksa hnuai lam phuhlip, a tleng zawnga lei khawihute chu a lian/sei bik a. A taksa hnuai lam tluanin a vang tan zawngin n awm a, a taksa dung tluanin n inrem thin. Chung phuhlip, an lu leh an mawng inkar chin chu *ventral* an ti.



Ventral

Ventral scale (V)

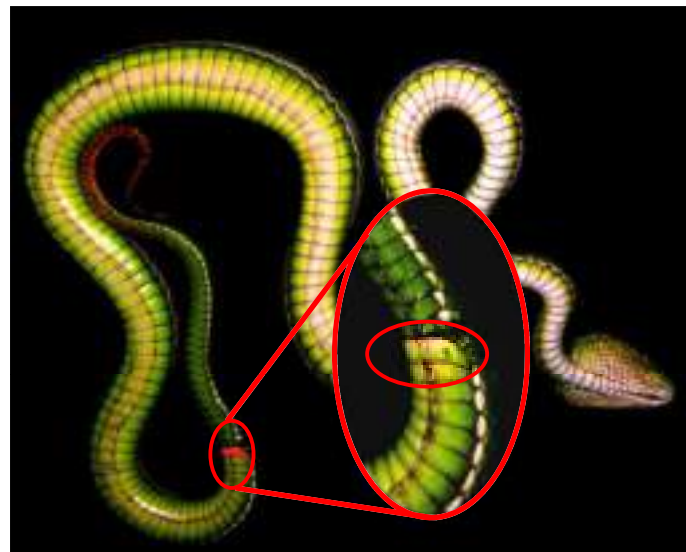
count dawn chuan A dul hnuai phuhlip sei bik chu a lu lam atanga chhiar tanin, a anal scale thlen hma zawng chhiar thlak mai tur a ni.

3. Tail Scales:

Anal (AS):

A mawngkaw chhintu phuhlip chu *anal* an ti. He phuhlip hi ventral leh subcaudal then hrangtu a ni.

A anal scale chu pakhat a nih chuan 'entire' an ti. A anal scale chu a inrîn tlang emaw a phel emaw a ni chuan 'divided' an ti.



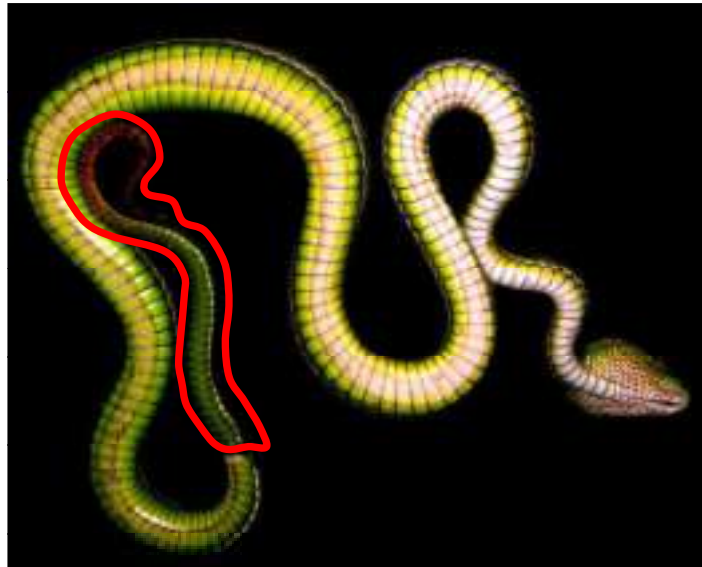
Anal

Subcaudal(SC):

A mei hnuai lam, anal hnung chiah aṅanga a mei tawp thlenga phuhlip awmte chu *subcaudal* an ti.

Sub-caudal chu a taksa vang tluanin pakhat (*entire*) emaw, a inkawpin (*divided*) emaw a awm ṅhin.

Sub-caudal Scale Count dawn chuan a anal scale lam aṅangin a mei hmawr tawp thlengin phuhlip engzat nge intlar emaw, kawp engzat nge awm tih emaw chhiar tur a ni.



Subcaudal

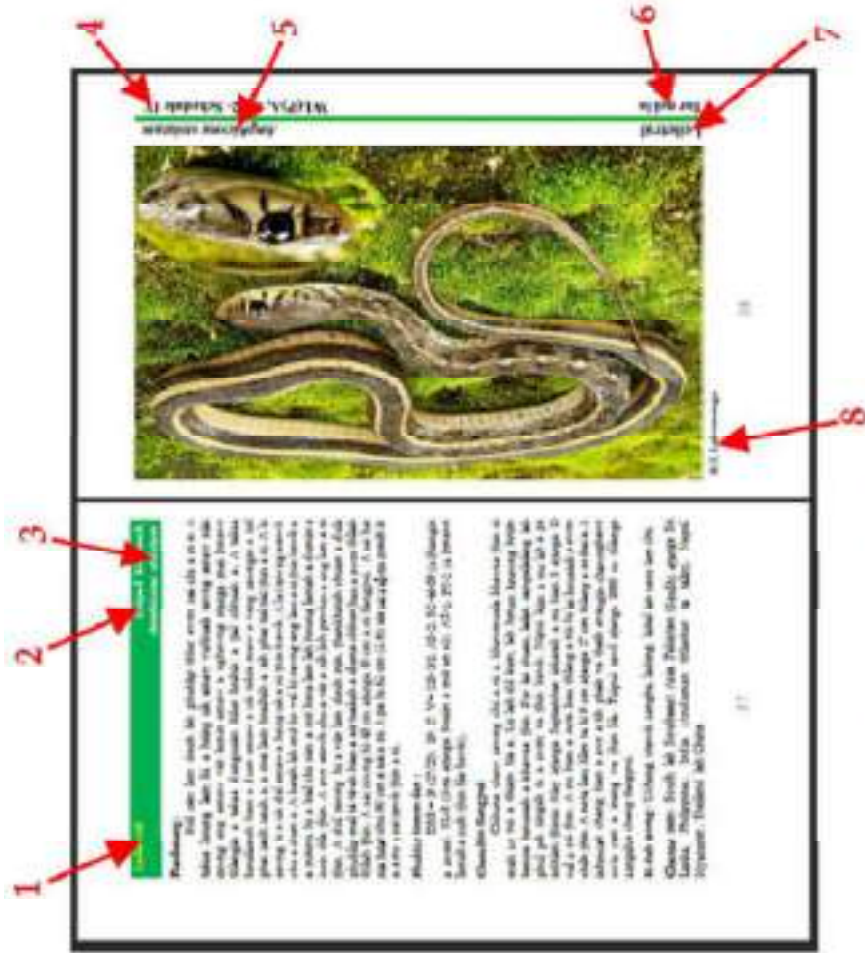
HEMIPENIS

Rûl chi inhnaih bik ṅhenkhat chu an phuhlip zat leh a inrem dan aṅanga hriat hran mai harsa a awm ṅhin a. Hetiang rûl chi inhnaih bik hriat hranna atan chuan a pa serh (hemipenis) pianhmang hi rûl chi hrang hriat hranna atan an hmang ṅhin bawk.



Rul chi hrangte hi a pa serh pianhmang a danglam ṅhin

A BU KALPHUNG



- 1&7** = Mizo hming; **2** = Sap hming; **3** = Einomial Name;
- 4** = Humhahna dan; **5** = Binomial name; **6** = Tur dirhmun;
- 8** = Thla latu hming.

Rawng awmzia

-  Tur nei lo
(Non-Venomous)
-  Tur hlauhawm lo
(Mildly Venous)
-  Tur hlauhawm
(Mildly Venous)

Lam lawi

- DSR = Dorsal scale row
- V = Ventral
- SC = Sub-caudal
- SL = Supra-labial
- IL = Infra-labial
- PRO = Pre-ocular
- AS = Anal scale
- PO = Post-ocular
- R = Rostral
- AT = Anterior temporal
- PT = Posterior temporal
- L = Loreal
- INT = Inter-nasal
- PF = Pre-frontal
- O = Occipital



H.T. Lalremsanga, Samuel Lalronunga (inset)

Rulmitdel
Tur nei lo

Argyrophis diardii
WL(P)A, 1972- Schedule IV



HT. Lalremsanga

Rulmitdel

Indotyphlops brahminus

Tur nei lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Rulmitdel

Tur nei lo

Indotyphlops jerdoni

WL(P)A, 1972- Schedule IV





H.T. Lalremsanga

Rulpui

Tur nei lo

Malayopython reticulatus

WL(P)A, 1972- Schedule I



K. Lalmangaiha

Saphai

Python bivittatus

Tur nei lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Tui Saphai

Tur nei lo

Ferania sieboldii

WL(P)A, 1972- Schedule IV



Samuel Lalronunga

Rulsakei

Pareas monticola

Tur hlahhawm lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Phulrul

Tur nei lo

Amphiesma stolatum

WL(P)A, 1972- Schedule IV



Vantalhrima

Ruamrul

Tur nei lo

Hebius Khasiense

WL(P)A, 1972- Schedule IV





H.T. Lalremsanga

Kawrrul

Tur nei lo

Hebius xenura

WL(P)A, 1972- Schedule IV





H.T. Lalremsanga

Rulnghawngeng

Tur hlauhawm lo

Rhabdophis himalayanus

WL(P)A, 1972- Schedule IV



Rhabdophis subminiatus
WL(P)A, 1972- Schedule IV

Rulnghawngsen
Tur blaauhawm

H.T. Lalremsanga



Samuel Lalronunga

Tuirul

Xenochropis piscator

Tur nei lo

WL(P)A, 1972- Schedule IV



Lalnunhlua, Samuel Lalronunga (inset)

Chawngkawrsuak

Pseudoxenodon macrops

Tur blauhawm lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Rulvankai / Vanzik

Ahaetulla prasina

Tur hlauhawm lo

WL(P)A, 1972- Schedule IV



Samuel Lalronunga

Chhimbalrul

Tur nei lo

Blythia reticulata

WL(P)A, 1972- Schedule IV



Samuel Lalronunga

Rubrial

Tur hlahhawm lo

Boiga cyanea

WL(P)A, 1972- Schedule IV



Vanlalhrima

Thuangthumrul

Tur hlahhawm lo

Boiga gokool

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Rulsakhi

Boiga ochracea

Tur hlauhawm lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Mautamrul

Tur hlahhawm lo

Boiga quincunciata

WL(P)A, 1972- Schedule IV





H.T. Lalremsanga

Kawlrul

Boiga siamensis

Tur hlauhawm lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Rulthiawrh

Tur nei lo

Calamaria pavementata

WL(P)A, 1972- Schedule IV



Vantalthrima

Rulvankai / Lenbuangrul

Chrysopelea ornata

Tur hlahhawm lo

WL(P)A, 1972- Schedule IV



Romalsawma

Ruhlai / Hlaivar

Tur nei lo

Coelognathus radiatus

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga, Samuel Lalronunga (inset)

Vánzerâng/Rulvânkâi

Tur nei lo

Dendrelaphis cyanochloris

WL(P)A, 1972- Schedule IV



Samuel Lalronunga

Rulvankai

Tur nei lo

Dendrelaphis pictus

WL(P)A, 1972- Schedule IV



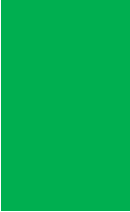
Romalsawma

Hlaihiring

Tur nei lo

Gonyosoma prasina

WL(P)A, 1972- Schedule IV





Lallawmsanga

Rulbekrin

Liopeltis frenata

Tur nei lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Rulbekrin

Tur nei lo

Liopeltis stoliczkae

WL(P)A, 1972- Schedule IV





Samuel Lalronunga

Rulvaiṭhi

Tur nei lo

Lycodon aulicus

WL(P)A, 1972- Schedule IV



Vanlalhrima

Rulvai

Tur nei lo

Lycodon jara

WL(P)A, 1972- Schedule IV





Lycodon zawi

WL(P)A, 1972- Schedule IV

Rulhnungde

Tur nei lo

H.T. Lalremsanga



Lallawmsanga

Rulbekrin

Liopeltis frenata

Tur nei lo

WL(P)A, 1972- Schedule IV



H.T. Lalremsanga

Rulbekrin

Tur nei lo

Liopeltis stoliczkae

WL(P)A, 1972- Schedule IV





Samuel Lalronunga

Rulvaiḥi

Tur nei lo

Lycodon aulicus

WL(P)A, 1972- Schedule IV



Vanlalhrima

Rulvai

Tur nei lo

Lycodon jara

WL(P)A, 1972- Schedule IV





Lycodon zawi

WL(P)A, 1972- Schedule IV

Rulhnungde

Tur nei lo

H.T. Lalremsanga



Vanlalbrima

Rulpaihawl

Tur nei lo

Oligodon albocinctus

WL(P)A, 1972- Schedule IV



Vantalthrima

Rulvutbuak

Tur nei lo

Oligodon cinereus

WL(P)A, 1972- Schedule IV





H.T. Lalremsanga

Damrul
Tur nei lo

Oligodon cyclurus
WL(P)A, 1972- Schedule IV



Vanlalhrima

Rulmeisen

Tur nei lo

Oligodon dorsalis

WLP(A), 1972- Schedule IV



H.T. Lalremsanga

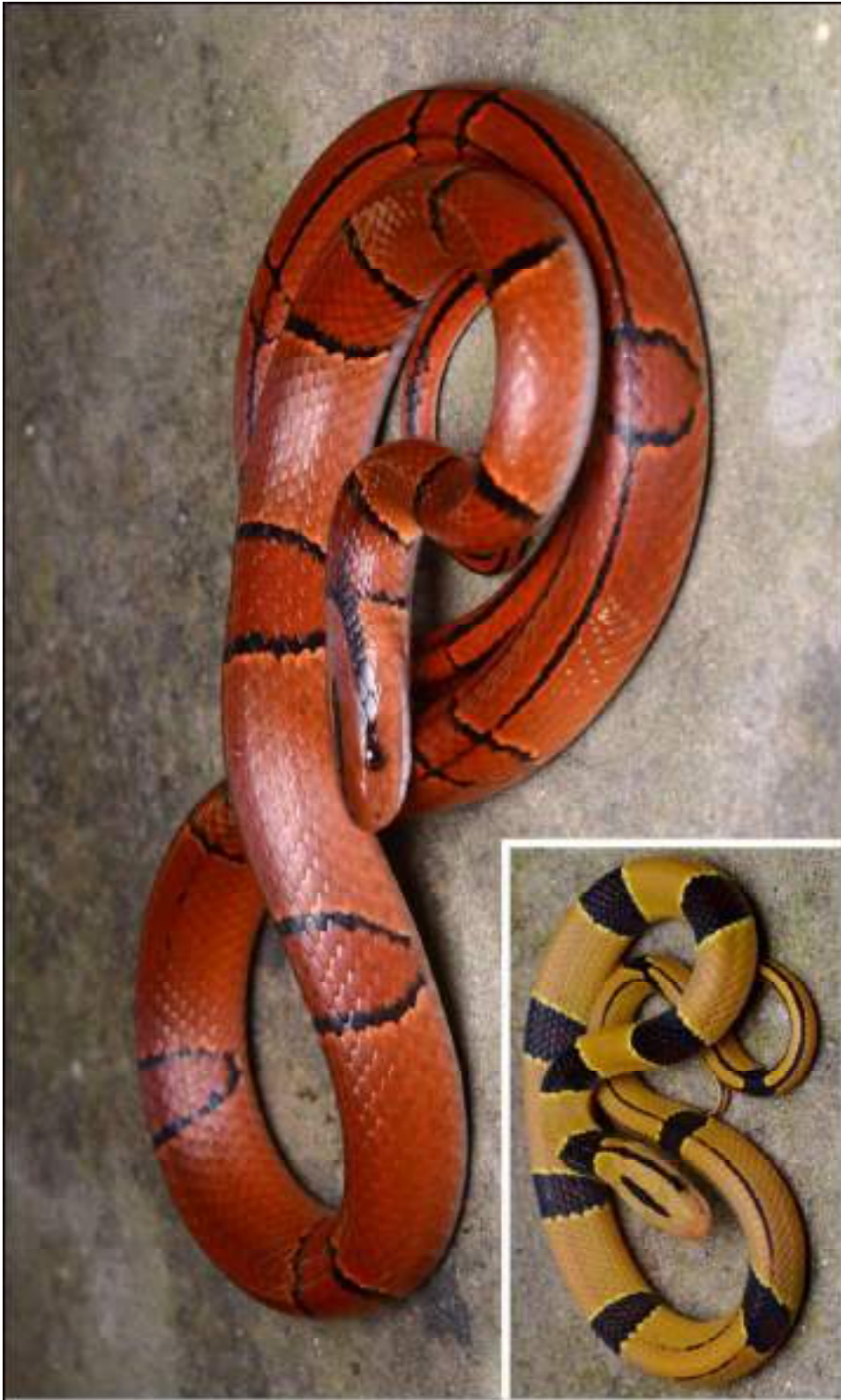
Hlaimawi

Orthriophis taeniurus

Tur nei lo

WL(P)A, 1972- Schedule IV





Samuel Lalronunga

Hlaite

Oreocryptophis porphyracea

Tur nei lo

WL(P)A, 1972- Schedule IV



P.L. Lalsawmliana

Rulzekak

Psammodynastes pulverulentus

Tur hlahhawm lo

WL(P)A, 1972- Schedule IV



Lalnunhlua, Samuel Lalronunga (inset)

Ruhlai/Hlaiuk

Tur nei lo

Ptyas korros

WL(P)A, 1972- Schedule IV



C. Lalrinchhana

Rulhlai / Hlaivawm

Ptyas mucosa

Tur nei lo

WL(P)A, 1972- Schedule IV



Vandalhrima

Ruahlawmrul

Tur nei lo

Rhabdops bicolor

WL(P)A, 1972- Schedule IV



Vanlalhrima

Rulnghawngdum

Tur nei lo

Sibynophis collaris

WL(P)A, 1972- Schedule IV





Vantlhrima, Lalnunhlua (right inset)

Chawnglei/Tiangsir
Tur hlahhawm

Bungarus fasciatus
WL(P)A, 1972- Schedule IV



Vanalhriatzuala Sailo

Khuavangrul

Bungarus niger

Tur hlahhawm

WL(P)A, 1972- Schedule IV



Romalsawma, H.T. Lalremsanga (right 3 insets), Vanlalhrima (left inset)

Chawngkawr

Tur hlauhawm

Naja kaouthia

WL(P)A, 1972- Schedule IV



Romalsayma, Lalnunhlua (right inset)

Rulngan

Tur hlaubawm

Ophiophagus hannah

WL(P)A, 1972- Schedule II



Sinomicrurus macclellandii

WL(P)A, 1972- Schedule IV



Rulthihna

Tur blaühawm

H.T. Lalremsanga, Vanlalhrima (inset)



Romalsawma

Rulmuk / Zorul

Tur hlauhawm

Ovophis monticola

WL(P)A, 1972- Schedule IV



Vanlalhrima

Rultuha / Zawngral

Tur hlauhawm

Trimeresurus erythraurus

WL(P)A, 1972- Schedule IV



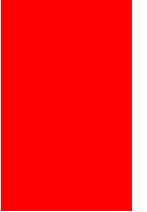
H.T. Lalremsanga

Rultuha

Tur blaubawm

Trimeresurus popeiorum

WL(P)A,1972 - Schedule-IV





Vandathrima

Rulthinghar

Tur hlauhawm

Protothothrops microsquamatus

WL(P)A, 1972- Schedule IV

PUITHUNA ATTHLAK LEH THUDI

✘ Rûlin bawng hnute a hne ðhin.

✓ An chaw pui ber a nih loh avangin rûl hian bawng hnute a hne ngai lo. Rûl lei hi thil fawh leh hnekna atana siam a nih loh vangin bawng hnute a hne thei lo. A tui a hal tak tak a nih chuan bawng hnute tling te chu a dawt ve mai thei.

✘ Rûl ðhenkhatin lunglu a pai.

✓ Rûl hian lunglu a pai hriat a ni lo va, awm pawh a awm thei hek lo. He thil hi chu hmanlai titiah chauh hriat a ni.

✘ Rûl in chuk tumin mi a um ðhin.

✓ Rûl hian mihring a hlauh mai bakah a aia lian nungcha dang te a hlau hle a ni. Mihring an hnai tih a hriat chuan tlanhhiatna tur a zawng zawk ðhin. Amaherawhchu, thah tuma hual chepin tlanhhiatna tur a hriat tawh lo chuan rûl ðhenkhat chu a inven nan a lo inhrosa ve ðhin a, churang chuan rûl kan hlauhna leh kan thil dik lo hriat tawh te avangin min beih let tum angin kan ngaih phah ðhin.

✘ Rûl hian amah tinatu a chhinchiah ðhin.

✓ Rûl hian mihring anga phuba la thei tur khawpin finna a nei lo. Hetiang hi chu lemchanah chiah a awm thei a ni.

✘ Rûl pakhat thah hian phuba la turin rûl dang a lo kal ðhin.

✓ Hei pawh hi lemchan thil mai mai a ni. Amaherawhchu, rûl ðhenkhat chu kan thahna lamah chi a thlah dawn a, a rim tihchhuah ðhin kha kan lo ti chhuak thei a, chu chuan a nu/pa a ko ðhin. Hei hi chi a thlah hun lai a nih chuan a nasa zual bik.

✘ Rûl hi rimawi tum in a lam tir theih.

✓ Rûl hi rimawi ri vangin a lam ngai lo. Chawngkawr (a inhrosak laiin) rimawi ri vang ni lovin rimawi tumtu che vel en zuiin a thle kual ðhin.

✘ Mi ṭhenkhat chuan rûl chuk an haw lo.

✓ Rûl tur haw lo a awm theih loh. Rûl zawng zawng hian tûr an nei vek kher lo a, a tûr nei chi ho pawh hian a tûr hi a chaw zawna atan bera a hman avangin inven nan a hmang zen zen lo, tûr chhak chhuak tel lova chuk a ngah zawk a ni.

✘ Rûlngân nuin a bu a awp a, a pain thingkungah a veng ṭhin.

✓ Rûlngân hi rûl dang ei chi a nih avangin an inpawl zawh hian an kal hrang nghal a, a nuin bu a chhepin, a tûi a veng a, a keu dawn hnaihah a nu pawhin a bu hi a kalsan ṭhin.

✘ Rûlhlay hi rûlngân nu a ni.

✓ Rûlngân leh rûlhlay hi rûl chi dang daih an ni. Chi inang lo an inthlah pawlh ngai lo. Hei hi chu rinthu mai leh an inan deuh avanga phuahchawp mai a ni. Rûlhlay chu rûlngân chaw tûi ber a ni.

✘ Rûl ṭhenkhat chuan lu (head) pahnih a nei.

✓ Lu pahnih nei chi hrim hrim a awm lo a, piansual vang erawh chuan lu pahnih nei a awm thei. Rûl ṭhenkhat chu mei (tail) bawng turh te an nih avangin bel Chiang lo in lu pahnih nei emaw an ti ṭhin. Eg. Chawnglei/Tiangsir

✘ Rûl ṭhenkhat chu a thlawk thei.

✓ Rûl thlawk thei an awm lo. Rûl ṭhenkhat eg. Lenbuangrul / Ornate Flying Snake te chuan an taksa tiphekin hmunsang aṭangin hmun hniam zawkah an leng (glide) thla ve ṭhin.